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AN ACCOUNT
OF THE
VARIOLOID EPIDEMIC.

AN ACCOUNT
OF THE
VARIOLOID EPIDEMIC,
WHICH HAS LATELY PREVAILED IN
EDINBURGH AND OTHER PARTS OF SCOTLAND;
WITH
Observations
ON THE
IDENTITY OF CHICKEN-POX
WITH
MODIFIED SMALL-POX;
IN A
LETTER
TO
SIR JAMES M'GRIGOR,
DIRECTOR-GENERAL OF THE ARMY MEDICAL DEPARTMENT, &c. &c.

BY JOHN THOMSON, M.D.F.R.S.E.

Surgeon to the Forces, Honorary Member of the Royal Medical Society of Edinburgh,
Professor of Surgery to the Royal College of Surgeons, Regius Professor of
Military Surgery in the University, and Consulting Physician
to the Edinburgh New Town Dispensary.

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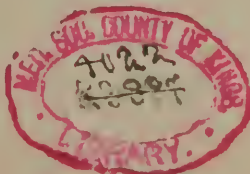
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L'ART de décrire une maladie consiste moins à tout noter, qu'à signaler les phénomènes qui tendent à éclairer le dogme clinique, dont on fait l'objet direct des ses recherches.—*Berard et de Lavit Essai sur les Anomalies de la Variole et de la Varicelle.* P. 6. MONTPELLIER, 1818.



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LETTER, &c.

MY DEAR SIR JAMES,

THE very great interest you take in the investigation of every branch of practical medicine, and the desire I feel that my opinions on medical subjects should receive the sanction of your approbation, induce me to state to you, more fully than I have hitherto done, the views which led me to adopt that hypothesis concerning Varioloid Diseases which I published in the 56th Number of Dr. Duncan's Medical and Surgical Journal.* No one can view that hypothesis with greater distrust than I should myself have done some months ago; but the opportunities which I have lately had of attending, in a particular manner, to the appearances and progress of these diseases, have not only convinced me of the insufficiency of the characters, by which it has been attempted to distinguish them from each other, but have also compelled me, most reluctantly, to abandon opinions which I had entertained for thirty years, and which I had taught with increasing confidence for more than half that period.

Aware of the numerous sources of fallacy in

* See Appendix, No. I.

medical observation, and warned, as I have been, by experience, of the danger of trusting to my own judgment, even when supported by the authority of those most eminent in our profession, I cannot but feel anxious that my opinion of varioloid diseases should undergo a thorough investigation, and that the conclusions which I have been led to form respecting them, should be confirmed or refuted by those whose opportunities of observation, and habits of analytical inquiry, qualify them to direct the judgment of the public in a matter of such general interest and importance.

There are periods in the progress of every natural science in which it becomes necessary to revise the facts and hypotheses of which it consists; and surely if ever there was a time when it was proper to reconsider the facts which have been ascertained, and the hypotheses that remain to be verified respecting varioloid diseases, the present is such. The confidence of the public in the salutary powers of cow-pock inoculation, has been in some degree, shaken by the late very general prevalence of small-pox; and medical practitioners still continue to differ widely in their opinions with regard to the nature and causes of those varioloid diseases, which, in so many different places, have occurred in persons who had undergone the process of vaccination.

You are aware, that when I first began to observe the phenomena of the present epidemic, my

mind was strongly impressed with a belief, that it originated in the contagion of chicken-pox. Many circumstances contributed at that time to confirm me in this belief. I had long adopted the opinion of Dr. Heberden with regard to the separate and independent nature of chicken-pox; and I had also, by personal intercourse with the late Dr. Willan, as well as by the diligent study of his writings, learned to place a confidence, almost unlimited, in the views which he had taken of the distinctive characters of eruptive diseases. Besides the varioloid epidemic, which I had occasion to observe at Colinton, Slateford, and Currie, in 1809, I had had frequent opportunities, both before and after that time, of seeing cases which were supposed to be examples of the occurrence of small-pox after vaccination. In several of these, it was impossible to deny, that the eruption, in its appearance and progress, bore a striking resemblance to small-pox; yet, notwithstanding this, I had satisfied myself, by a reference to the writings of Drs. Heberden, Sims, Willan, and other eminent practitioners, that the disease, in the doubtful cases to which I allude, was that which had been described by those authors as aggravated chicken-pox; and my belief in the accuracy of this opinion was strengthened, by my being able, in some instances, to trace the infection to eruptions which I conceived to be unequivocal chicken-pox, in the

individuals either from whom it had been received, or to whom it had been casually communicated.

In the progress of the occurrence of such cases, I had many opportunities of perceiving the uncertainty of the grounds upon which, in particular instances, a case was declared to be chicken-pox or small-pox. It appeared to me, that practitioners were in general very unwilling to suffer themselves to be shackled by an adherence to any definitions of nosologists, and that, in deciding on doubtful cases, a reference was usually made to some ideal standard, not only indefinite in its nature, but varying from time to time, and seeming to be influenced by moral as well as by medical considerations. I had felt much difficulty, also, in admitting the distinction recently introduced in varioloid diseases between natural small-pox and small-pox modified by vaccination; and in several cases, pointed out to me as modified small pox by my friend Mr. Turner and others, I satisfied myself, by examination, that they bore an undistinguishable resemblance to those eruptions which I had been accustomed both before and after the introduction of vaccination, to regard as examples of chicken-pox.

The first cases in which I was made sensible, by observation, of the reality of the distinction between natural and modified small pox, occurred in a family at Broughton, and have since been described by Dr. Alison, in the 55th Number of Dr. Duncan's Journal. From that time my attention

was unremittingly employed in endeavouring to discover in individual cases, as they presented themselves to my notice, those peculiar characters by which modified small-pox might be distinguished from chicken-pox. The prevalence of the vario-lid epidemic in Edinburgh continued to afford me daily opportunities of seeing eruptions in those who had been vaccinated, some of which, from their symptoms, progress, and termination, I could not but consider as chicken-pox ; others which, though they resembled chicken-pox in their commencement, assumed in their progress the appearance of small-pox : and others, again, which, in their commencement, progress, and termination, bore a much stronger resemblance to small-pox than to chicken-pox. In the unvaccinated, this epidemic exhibited all the characters, and produced the usual malignant effects, of small-pox.

Notwithstanding the increasing difficulties which I experienced in discriminating between chicken-pox and modified small-pox in those who had been vaccinated, I still continued, on the authority of Dr. Willan, to admit the soundness of this distinction, and to believe, that though, in some cases, it was difficult to distinguish the two diseases, they arose from the operation of contagious specifically different from each other.

It was at this time that I had an opportunity of seeing the consequences resulting from the inoculation of unvaccinated children in Edinburgh

Castle, with matter taken from Dr. Hennen's son, whose case, as well as the consequences of these inoculations, have been faithfully and accurately described by Dr. Hennen, in the 56th Number of Dr. Duncan's Journal. I visited this boy daily from the commencement to the termination of his disease, and it appeared to me to be the same with that which has been described as genuine chicken-pox. It was ushered in, it is true, by severe febrile symptoms; but the eruption that followed was vesicular in its origin, progress, and termination. The fluid contained in the vesicles was either absorbed or discharged by the bursting of the vesicles towards the end of the fourth day, leaving only a tendency to desquamation, or scurfiness of the cuticle; and, by the sixth day, the eruption had disappeared so completely, that it would have been difficult, I conceive, for any one to have said what was the nature of the eruptive disease through which the boy had passed. In no stage of the disease did there occur, so far as I could perceive, any appearance of tubercle, pustule, or horny scab, in the sense in which these terms have been defined by Dr. Willan, and in which I have been accustomed to use them in my lectures on the diseases of the skin. If, in looking back at that time upon all the cases which I had seen of varioloid diseases, I had been requested to point out the one which seemed to me to correspond most accurately with the descriptions of chicken-pox, I should have certainly fixed

upon the eruption in Dr. Hennen's boy. It was the circumstance of Dr. Hennen's viewing the disease in his son as a well marked example of chicken-pox, that led him to think of instituting the experiments made in Edinburgh Castle, which produced such interesting results.*

In four of the six children inoculated, the eruption that followed was at first vesicular; and though it became slightly pustular, it was of shorter duration than the disease usually produced by inoculation with the matter of small-pox. In the other two children, the disease, towards its termination, exhibited the appearances of small-pox; but when I reflected on the purely varicelloid form of the eruption from which the virus had been taken, and compared the appearances in these children with the descriptions of aggravated chicken-pox given by our best practical authors, I could not permit myself to believe that the disease, even in them, was small-pox; and my unwillingness to admit this was for a short time increased, by the very remarkable circumstance, that the seven persons who first caught the disease, from sleeping in the same rooms with these inoculated children, not fewer than four had previously passed through small-pox.

The disease in three of the four men who caught the infection, and who had previously passed

* See Appendix, No. II.

through small-pox, was, as may be seen by Dr. Hennen's report, uncommonly severe;* but, in the fourth, it was as slight, and of as short duration, as the mildest variety ever described of chicken-pox. The three others infected were children, two of whom were unvaccinated; and in one of these, also, the varioloid disease exhibited the characteristic symptoms, and ran through the usual short course of chicken-pox.

During the occurrence of these last cases in Edinburgh Castle, I had occasion, in other parts of the town, to observe natural small-pox, modified small-pox, and the disease which I had been accustomed to regard as chicken-pox, co-existing in the same situations, and appearing in their progress to produce one another. In three families, in particular, situated at a considerable distance from one another, and between which, except through their medical attendants, no sort of intercourse had existed, my attention was strongly excited by observing chicken-pox arise in unvaccinated children from the contagion of malignant small pox. The occurrence of this event in circumstances which left no room for doubt, because there appeared to be no possible source of fallacy in the observation, led me to conceive, that all the various appearances of the epidemic, in the different classes of persons whom it attacked, might be produced by the opera-

* Appendix, No. III.

tion of one and the same contagion ; and, in consequence of this view of the common origin of varioloid diseases, I was induced to believe, that the disease in Dr. Hennen's son, which had appeared to me to be chicken-pox, and all the cases which had sprung out of it, might have been produced by the contagion of genuine small-pox. This conjecture appeared to receive additional illustration and support from the pustular and varioloid appearance of the eruption, and the fatality of the epidemic in the unvaccinated, and from the vesicular and variceloid from which it usually assumed in the vaccinated. These two distinct forms of the disease were to be seen prevailing at the same time in every quarter of the town, and often in patients living under the same roof, and even in the same room.

My chief difficulty in admitting this conjecture, arose for my respect for the authority of Drs. Dimsdale, Heberden, Willan, Mr. Moore, and other authors of eminence, who had been particularly occupied with the investigation of this subject, and from a persuasion that a view so simple as that which appeared to me to explain all the varieties of small-pox, and to account for the numerous discrepancies of opinion entertained by practical authors regarding them, had it been just, could not have so long escaped the discernment of many acute inquirers, whose opportunities of observation were probably greater than any I had enjoyed : I could not therefore but suspect that an explanation so

obvious and simple would have been earlier adopted, had it not been found irreconcilable with some facts respecting varioloid diseases, established by experiment or observation.

The re-perusal, however, of the writings of these authors, and the impossibility of applying their distinctions, or of reconciling their opinions to the phenomena of the present epidemic, gradually lessened my apprehensions of mistake, and induced me to believe that the safest method I could follow, in the difficulties in which I found myself involved, was to set aside for a time all preconceived opinion, or reliance on authority, and to trust to my increasing opportunities of observation.

The appearances of the eruptions to which my attention was particularly directed had long been familiar to me, but the light in which I now began to view them was so different from that in which I had been accustomed to consider them, that every succeeding case of the epidemic became a new source of curiosity and interest. In reflecting on these cases as they occurred, and in comparing them with those which I had formerly seen, nothing surprised me more than the facility with which all the diversities of varioloid diseases could be explained by the supposition of a common origin; and on mentioning this to some of the older and more experienced practitioners of my acquaintance, I was equally surprised to find, that though their general impressions, were at variance with this

supposition, yet they were unable to point out any precise facts derived from their own experience, by which it was contradicted. Their belief in the independent existence and separate occurrence of small-pox and of chicken-pox was, so far as I could perceive, founded, as my own had been, on imperfect observation, vague recollection, and too implicit a deference for established opinion. I found, also, that few, if any of them, had ever been accustomed more than myself to distinguish between cases of chicken-pox and of modified small-pox, or to admit the possibility of small-pox occurring a second time in the same individual, though it was obvious, from what was daily taking place in the present epidemic, that this was an occurrence which must frequently have come under their observation. The numerous instances however, in which, during the progress of the epidemic, I saw small-pox attack those who had previously passed through that disease, compelled me to admit not only the possibility, but even the frequency of the recurrence of small-pox in the same individual; a fact, of which the longest experience of many of the best-employed practitioners of our own and of former times has not appeared to them to have afforded a single example.

With the desire of calling the attention of practitioners to the view which I had taken of the identity of chicken-pox, and of modified small-pox, I published the results of my observation of the first

seventy-two cases of the present epidemic, to which my attention had been particularly directed, together with some queries which I conceived to be of importance in the investigation of varioloid diseases. Precise and accurate answers to these queries could not fail, I imagined, to remove much of that disagreeable uncertainty in which the subject appeared to be involved ; an uncertainty which must be painful to every benevolent mind, and in many respects injurious to the character of the medical profession. I had every reason to hope that practitioners would be generally disposed to assist me in an investigation requiring the co-operation of so many observers ; and I have pleasure in informing you, that several very agreeable proofs of this disposition are already in my possession. “ I was in hopes also, by this method, of reaping some benefit to myself from the opportunity which it would give, not only of drawing out other people’s sentiments, but, if any just cause should be offered, of changing even my own ; while I still kept it in my power either to drop my hypothesis altogether, or to reform it in such a manner as any new light or better information might happen to direct me.”*

In adopting and in publishing the conclusions which had forced themselves upon my conviction, I was aware that a view of varioloid diseases, so different from that which had been long entertain-

* Middleton.

ed by medical practitioners, could not be very readily admitted; and accordingly I have found, that of those practitioners who have honoured me with their correspondence, or with whom I have had an opportunity of conversing, comparatively few have been disposed to concur in the opinions which I have expressed respecting the identity of these diseases. It has, however, been to me a source of much satisfaction, to find that the observations of several practitioners who have had an opportunity of seeing this disease in other places, have corresponded with mine in almost every particular, and that not only the conclusions to which I have been led, have been adopted, but even my opinion respecting the identity of varioloid diseases anticipated by practitioners in situations very remote from one another. One of these anticipations, by Dr. Mudie of St. Andrew's, is to be found in an excellent letter with which I was favoured by that gentleman in October last, containing a particular account of a varioloid disease that prevailed at St. Andrew's during the winter of 1817-18; a second by MM. Berard and Lavit of Montpellier, in a treatise on the eruptive disease which prevailed at that place in 1816, a work which appears to me to be eminently distinguished by the spirit of observation which it displays, as well as by the learned researches of its authors; and I have been informed of a third, in the following paragraph of a letter which I have received from Dr. Howitz of Copen-

hagen. "I must also inform you, that I have presented your circular letter touching varioloid diseases to the Royal Medical Society of this place. It has been heard with so much the greater interest, that a similar idea had nearly at the same period been advanced in Sweden, as may be seen in the periodical reports of the medical people of that nation." I know also, that the idea of chicken-pox and small-pox arising from the same contagion, had suggested itself to Dr Bateman of London, about four years ago, and it was particularly agreeable to me to receive, in October last, a letter from that gentleman, in which he says, "I have read your paper in the last number of the Edinburgh Journal with great interest, and I am much inclined to concur with you in the supposition, that chicken-pox is in fact modified small-pox, and that Dr. Heberden denominated the disease, with more accuracy than he supposed, *variola pusilla*."

That the opinion of a common origin of varioloid diseases, so contrary to established belief, should have been the result of the observation of persons living remote from one another, and among whom no interchange of ideas had taken place, must, I conceive, be regarded, not merely as a singular coincidence, but as affording a presumptive proof in favour of the hypothesis which supposes the identity of these diseases. I cannot but regard it also as an additional confirmation of the soundness of my hypothesis, that the opinion ex-

pressed in my fourth conclusion should, without my knowledge, have been fully anticipated, and stated with great perspicuity by Mr. Bryce, in a correspondence that passed between him and Dr. Adams of Forfar, on the subject of a varioloid disease which prevailed at that place in 1814. The very minute and accurate description which Dr. Adams has given of that epidemic, corresponds so exactly with the appearance of the disease which has lately prevailed here, that I have requested and obtained permission from Mr. Bryce to insert it, together with his own ingenious, and, in my opinion, satisfactory explanation of the occurrence of small-pox in the form of horn-pox, after vaccination.*

The additional opportunity which occurred at Lanark, of seeing this disease, during its prevalence among the children at Mr. Owen's cotton-mills, a situation the most favourable that could be conceived for observation, induced me to visit that place at four different times. The disease appeared to be greatly milder there than in Edinburgh; but I found that it exhibited symptoms precisely similar to those seen here, in the three different classes of persons whom it attacked, and that the pustular and vesicular forms which it assumed occurred so indiscriminately in the same families, as to prove beyond doubt that they owed

* See Appendix, No. IV.

their origin to one common contagion. During my first visit, I had an opportunity of observing, in several unvaccinated children, the occurrence of the varioloid epidemic, in the form of pure chicken-pox, co-existing in some instances with modified, and in other instances with severe natural small-pox. Mr. Turner, to whose kind assistance I have owed much, in this, as well as in other professional investigations, also visited Mr. Owen's mills at my request, and has confirmed by his report the accuracy of the observations I had myself made there. But for a more particular account of the epidemic, as it prevailed at Mr. Owen's mills, I must refer you to the answers to my queries, with which I have been obligingly favoured by Mr. Gibson.

I found that the varioloid disease had prevailed also in the town and neighbourhood of Lanark ; but the short time I could be absent from Edinburgh in visiting that place, did not allow me to profit by the liberal offers of the practitioners there, to show me such of their patients as either had passed or were passing through the varioloid disease. This loss, however, has been amply made up to me by the correspondence of two of these gentlemen, who have afforded me fuller information than, during a short visit, I could possibly myself have obtained by personal observation.

On being informed that a varioloid epidemic was

prevailing in Perth, I also visited that city, in the beginning of November last, and found the disease there of the same nature, and as severe in its symptoms and effects, as that which existed and still continues to exist in Edinburgh. For the confirmation of this, I need only refer to the interesting results stated in answer to my queries, by Dr. Henderson of Perth.

The perfect similarity in the symptoms of the varioloid disease, as it has appeared at the same time in Edinburgh, Lanark, Perth, and other parts of Scotland, and the very different forms which it has assumed in the vaccinated, the unvaccinated, and those who had previously passed through small-pox, with the striking disproportion of its fatality in these different classes of persons, having given me every conformation which actual observation could afford, of the correctness of the conclusions I had formed, and of the truth of the hypothesis I had suggested, it only remained for me to inquire into the grounds upon which the opinions rested, by which that hypothesis seemed to be contradicted. This, however, from the great number of authors which it has been necessary to consult, from the diversity of their opinions, and from the contradictory evidence which has often been given respecting the same individual facts, has been a work of much greater labour and time than I had anticipated, or indeed would have undertaken, had I not been impelled by a feeling of

the importance of the subject to which the investigation relates.

In submitting to your judgment the general results of the information I have been able to acquire respecting varioloid diseases, I shall state to you, *1st*, The results of my own observation of the present epidemic; *2dly*, Those contained in the communications relative to this disease; which have been made to me by practitioners who have had opportunities of seeing it in other parts of the country; and to these I shall add, *3dly*, Some proofs which my hypothesis seems to receive from the past history of small-pox, judging, as I do, of that history by the imperfect view which my other avocations have allowed me to take of it, during the few months that my attention has been particularly directed to the investigation of this subject.

DESCRIPTION
OF THE
VARIOLOID EPIDEMIC.

SINCE the occurrence, in June 1818, of the varioloid disease in Dr. Hennen's son, I have had occasion to attend to the appearances which this epidemic has produced in 556 individuals. Of this number, 205 have been attacked by it, who had neither passed through small-pox nor cow-pock; 41 who had previously passed through small-pox; and 310 who had undergone the process of vaccination. I have been induced to continue my observation of the present epidemic longer than may seem to have been necessary, partly with a view to ascertain, upon an extensive scale, the degree of its mortality in those who had not been vaccinated, and partly also to be enabled to correct the description which I had drawn up of the more remarkable varieties of this disease, as they had presented themselves to my observation. Many of the cases from which the following

description has been taken, have been visited daily throughout the whole of their course, in situations often the least inviting that can be conceived. The nature and extent of this labour will be best estimated by those who have themselves been employed in visiting the habitations of the sick poor.

In all of the three different classes of persons whom it has attacked, the varioloid disease has appeared to me to exhibit certain general and common symptoms, while in each class it has appeared to possess more or less of a particular character. The principal varieties which have been observable in this epidemic, may be referred, I conceive, *1st*, To differences in the degree and duration of the eruptive fever; *2dly*, To differences in the number, form, contents, maturation, and decline of the pustules; and, *3dly*, To differences in the occurrence, degree, and kind of the secondary fever supervening in the severer cases of the disease.

Of the Varioloid Disease, in those who had neither passed through Small-pox nor Cow-pock.

IN this class the eruptive fever has in general been severe, though in some cases mild and of short duration. It has usually continued three days before the appearance of the eruption. The period of its duration, however, has not unfrequently varied from one to four days, and while it has been in some so slight as scarcely to have been

observable, in others it has been so severe as to have been regarded and treated as a smart attack of the typhus fever at present prevailing in Edinburgh. It has not been possible, either from the degree or duration of this fever, to foretel whether the eruption which was to follow, would be of a vesicular or a pustular, of a mild or a malignant, of a distinct or of a confluent form.

The eruption has been almost always papular in its origin. In a small number of cases, in which the eruption has been scanty, the papulæ have become vesicular on the first or second day, have continued such nearly till their disappearance, which has usually happened before the end of the fifth or sixth day, and have left behind them only a slight roughness, or small thin scales upon the skin. The cases to which I allude have occurred in situations, in which confluent and malignant small-pox existed, and to the contagion of which they could be distinctly traced. Had it not been for this circumstance, I should never have had any doubt of these cases having been examples of genuine chicken-pox. This variety might be termed *mild vesicular small-pox*.

In other instances, in which the papulæ have from the first appeared vesicular, the vesicles, after continuing pellucid for two or more days, have become filled with a whitish fluid, sometimes resembling milk, and sometimes pus, which dried into small crusts or scabs. It was impossible,

during the vesicular state of the disease in these cases, to say whether the vesicles would become pustules, whether, when they became pustules, they would continue prominent, or become depressed in their centres ; and whether they would decay by the sixth or by the ninth day. In this variety, though the disease might have been regarded as chicken-pox in its commencement, it was impossible, by any characters with which I am acquainted, to have distinguished it from small-pox, in its termination. This variety may be termed *vesiculo-pustular* small-pox.

In the greater number, however, of cases in this class, the papulæ have become more distinctly pustular at an early period of the eruption, and the disease in this form has varied remarkably in different individuals. In most instances in which the epidemic has from the first assumed the form of *distinct* small-pox, the appearance of the greater part, or of the whole, of the eruption has been simultaneous ; but in several, particularly in children, it has come out in successive crops. The pustules have generally been small, varying in size from a pin's head to that of a split pea ; and their figure has usually been regular, unless when they occurred in clusters. In but a small proportion of cases of this variety has there been any depression on the centre of the pustules ; and even in those cases in which depressions have appeared, they have usually occurred only in particular pus-

tules. The pustules, in a very few cases, have arrived at their height so early as the fourth day; most frequently, however, they have not arrived at this state before the sixth, and in several not before the ninth, or even a later day. It was not uncommon for an eruption in this variety to begin to fade on the face by the sixth day; while on the extremities, particularly the lower, it did not undergo this change before the eighth, ninth, or tenth day. In these cases the eruption has generally been later in appearing upon the lower extremities than upon the upper parts of the body. The smaller pustules, in drying, formed scabs which seemed to adhere but loosely to the subjacent skin; the scabs of the larger pustules adhered more firmly, acquired often a horny appearance, and did not separate till after a period of several days. The parts to which the scabs had been attached were sometimes formed into tubercular elevations, which disappeared gradually, and in a few cases left pits or depressions in the skin. The eruption in this variety has not unfrequently assumed the form which has been denominated *horn pock*, *stone-pock*, and *warty*, small-pox. In very few cases of the distinct small-pox have any symptoms of secondary fever occurred, and even when they have occurred, they have been but slight, and of short durations. In most of these cases, also, there has been very little if any of the smell peculiar to small-pox.

In a large proportion of cases in this epidemic, the small-pox have been of the *coherent* kind, a sort intermediate, as it were, between the perfectly distinct and the confluent, which might, according to the quantity of the eruption, and the mildness or malignity of the constitutional symptoms, be referred to the one or other of these species. This variety has usually been preceded by a smart attack of eruptive fever, in general abating on the appearance of the eruption, but in other instances continuing for some days after this has taken place. In a few instances a second attack of this fever has been observed to occur about the third day of the eruption, in some cases followed by a fresh eruption, and in others without that effect being produced. Inflammation of the fauces has been a very common occurrence in this, as well as in all the other varieties of the epidemic, sometimes accompanied, and always much aggravated, by the appearance of pustules in these parts.

The papulæ in the coherent variety have not unfrequently been observed to be vesicular before becoming pustular. In some instances the vesicles have been visible on the papulæ from their first appearance, and in others not before the second or third day. The change from the vesicular to the pustular form has usually taken place from the third to the fifth day. In other instances, however, the papulæ have become pustular without having been vesicular. In whichever of these forms the

eruption had first appeared, it has seldom arrived at its height, except on the face, before the ninth day. The size of the pustules has varied from a pin's head to that of a horse bean. Their figure has been regular and irregular, lenticular, conoidal, and globate; in some instances with, and in others without central depressions. In a few instances the middle of some of the pustules, after the third day, became elevated by the formation of small transparent vesicles on their tops, the fluid of which was contained in a cavity distinct from that of the pustule on which it was superposed. It would seem as if in these cases the first pustules had been covered by a portion of the cutis, between which and the cuticle the superposed vesicles was formed. The pustules, in their maturation, were filled sometimes with a whey-coloured lymph, and at other times with a cream-coloured viscid pus; and not unfrequently these varieties in the size, form, and contents of the pustules could be observed at the same time on the body of the same person. The milk-like pustules, in drying, formed semi-transparent, brown-coloured horny scabs, the purulent dried into yellowish incrustations, or dirty whitish ash-coloured brittle crusts. The horny scabs, in falling off, usually exposed tubercular elevations of a bluish-red colour, which gradually disappeared, sometimes leaving behind them superficial marks or slight depressions of the cutis. The parts covered by the purulent scabs or

crusts were sometimes, on the falling off of these, found depressed, and with a tendency to ulceration. The red-coloured marks or blains which they left behind them continued often for several weeks, and were followed by distinct pits or depressions of the cutis.

In the coherent variety the secondary fever was always more or less observable, frequently severe, with swelling of the face often occasioning a temporary blindness, with ptyalism, and increased inflammation of the internal parts of the mouth and fauces, which produced cough, difficulty of deglutition and of respiration, and in some instances this variety of the disease has proved fatal. It was only in some of the severer cases of this variety, that the smell which is peculiar to small-pox could be perceived. In some of the severer cases also, the decay of the eruption was followed by the formation of biles in different parts of the body; in others, the swelling of the face and eyelids having abated, the eyes were found inflamed with a tendency to specks or ulceration of the cornea, and in others again a tendency to glandular swellings, has been left by the disease.

Of the epidemic, when it has occurred in a *confluent* form, two varieties have been observable, the one *pustular* and the other *vesicular*. In the pustular sort, which has been the most frequent, the papulæ have often been for a time vesicular before becoming pustular. The pustules have

generally been small, little elevated above the surface of the skin, depressed from the first in their centres, and raised towards their circumferences by a whitish ash-coloured lymph, instead of a well concocted purulent matter. Not unfrequently the papulæ presented for the first two or three days the appearance of measles, and this appearance has usually been followed by malignant small-pox; and in some instances the eruption in its progress has been intermixed with pustules of a larger size, and with livid vesications. The severity of the constitutional symptoms of this variety, its external appearances and fatal effects have been those of ordinary confluent small-pox, and but few if any have recovered from this form of the disease. One woman, in the seventh month of her pregnancy, was attacked by the disease in this form, to which, after suffering an abortion, she fell a victim.

In the other variety of the confluent sort, the eruption consisted of small watery vesicles, of a rounded form, covered by a thin cuticle, and filled with a limpid fluid, generally preceded by papulæ, but in some instances with little, if with any papular appearance. In their progress the vesicles usually became larger and distended, ran into one another, burst and discharged their contents, sometimes as early as the fourth day, in other instances not before the fifth or sixth day. The cuticle peeled off from the extremities, and other parts of the body, leaving the skin which had been covered

by it, in a dry, inflamed, and gangrenous state. This *malignant vesicular*, crystalline, or water-small-pox, has occurred chiefly in infants below a year old, and in every instance has proved fatal. In most of the patients affected with the vesicular, and in several with the pustular confluent small-pox, petechiæ, vibices and gangrenous spots have occurred before death, sometimes with the formation of irregular vesications, and in a few instances with the extravasation of blood into some of the vesicles and pustules, forming what has been termed the *sanguineous* or bloody small-pox. Convulsions, which have been so often observed in the eruptive and secondary fevers of small-pox, have been but rare occurrences in the progress of the present epidemic, and have attacked those chiefly who had the disease in a confluent form.

In describing the varieties of natural small-pox which have occurred in the progress of the present epidemic, I have endeavoured to point out only the more prominent of these varieties. To describe all the intermediate gradations and diversities of the disease would be as difficult as I conceive it would be useless; for there have been scarcely any two individuals in whom the appearances of the eruption, or the constitutional symptoms have been entirely alike. Indeed, the epidemic has appeared to me to have exhibited in its progress all the varieties of small-pox from the mildest to the most malignant form of that disease described by

practical authors ; and it is curious to observe that the mildest form in which it has occurred, as well as the most malignant, have been both strictly vesicular eruptions, in which scarcely a particle of purulent matter was to be observed from their commencement to their termination.

Of the 205 persons whom I have seen affected with the different forms of natural small-pox, 50 have died, giving a proportion of deaths nearly as 1 in 4, and affording an undoubted proof of the malignant nature of the present epidemic in its unmodified state. Of all the diseases to which human life is exposed, natural small-pox is not only the most fatal, but the most painful and loathsome. It is impossible to witness the misery it occasions, and not to admire the discoveries, and revere the exertions by which the horrors of such a malady may be almost if not altogether prevented.

Of the Varioloid Disease in those who had previously passed through Small-Pox.

In 41 cases of this kind which I have seen during the present epidemic, the disease has occurred in individuals who had distinctly gone through either the natural or inoculated small pox, some of whom had even been deeply marked by this disease. In these instances the interval between the two attacks has varied from ten days to thirty years. The eruptive fever in the greater

proportion has been severe, but in some cases so mild as scarcely to have been perceptible. In a considerable number, the eruption, in its appearance and duration, has resembled the affection which has usually been described as chicken-pox, both in its vesicular and pustular forms. In others the eruption has resembled that of distinct small-pox, and in others again small-pox of the coherent kind.

In the vesicular and distinct varieties, the eruption of secondary small-pox has arrived at its height, sometimes by the fourth or fifth day, and almost always by the sixth day. In the coherent variety, the eruption has generally arrived at its height on the face by the sixth day, though on the body and extremities it has often not begun to decay before the eighth, tenth, or even the twelfth day. Even in the coherent variety the eruption has had at first a vesicular form, and has frequently come out for several days in successive crops. The pustules have usually been superficial, full and prominent, containing sometimes a milk-like, and at other times a purulent fluid. In decaying, the pustules on the face have usually dried into yellow crusts, and on the trunk and extremities they have gradually dried into horny scabs, the separation of which from the skin has been followed by tubercular elevations, blains, and sometimes by pits or depressions in the cutis. In some the turgid pustules on the extremities

have gradually sunk, and became shrivelled from the absorption of the contained fluid; in others the pustules assumed the appearance of blebs, and in others again vesications occurred in the interstices, and extended over the surface of large clusters of pustules, on the trunk as well as on the extremities. In decaying, these pustules, blebs, and vesications, seemed to be filled partly with lymph and partly with air. It is remarkable how much the appearances of the eruption in this class resembled those which have been described by the older authors as *spurious* small-pox, under the names of the chicken-pox, sheep-pox, swine-pox, wind-pox, siliquose-pox, bladder-pox, &c. &c.

In the coherent secondary small-pox, particularly when the eruption manifested any tendency to become confluent, swelling of the face, ptyalism, and sore throat, occurred about the sixth or seventh day, followed by swelling of the feet and hands, and accompanied with an attack of secondary fever, causing considerable alarm for the safety of the patient. These symptoms, however, in general quickly subsided, the eruption has disappeared, and the patients have recovered their strength in a much shorter time, than patients who had laboured under similar eruptions of primary small-pox. In one instance only has the disease occurred for the third time, and what is singular, it was more severe in the last attack than in either of the two former.

Besides the 41 cases which I have myself seen, I have been informed of 30 others in which the present epidemic has attacked those who had previously passed through small-pox, and of this whole number 71, 3 have died, giving a proportion of deaths nearly as 1 in 23. It deserves to be remarked, that in two of the instances in which the disease proved fatal, the eruption in the first attack, though it could be traced to the contagion of small-pox, was vesicular rather than pustular, and that in both the disease recurred a few weeks after the first attack.

Of the Varioloid Disease in those who had undergone the process of Vaccination.

Inoculation with cow-pock having been had recourse to in families where small-pox were prevailing, repeated opportunities have occurred of observing the co-existence of these two diseases in the same individual, and of observing also the salutary and wonderful power which cow-pock, under these circumstances, appears to possess of mitigating the severity of small-pox, and even of preventing their occurrence altogether. I have not been able, from my own observation, to determine the distance of time after exposure to the contagion of small-pox, when vaccination fails to exert its salutary powers over that disease; several cases however have occurred, in which inoculation with

vaccine virus seemed to produce a modifying effect, and others in which there appeared reason to believe that it had prevented the occurrence of small-pox, in individuals who had for several days been exposed to that contagion. In one instance, however, where an infant seven months old had been repeatedly exposed to the contagion of small-pox for ten or twelve days before it was vaccinated, the vaccination did not seem to have produced any modifying effect upon the small-pox which appeared upon the child nine days after this operation, in the form of malignant water-pox, and proved fatal.*

* This case, owing to the mistake of my believing that the vaccination had been performed some months before the appearance of the small-pox, I have often mentioned in conversation and writing, as affording an example of death in one who had gone through the process of vaccination. I am indebted for the correction of this mistake to Mr. Renton of Pennycuik, who also first showed me the case as one of three which had been vaccinated by the midwife in a village six miles from Edinburgh. On a recent and careful inquiry, I learn, that in the infant which I saw affected with small-pox, two limpid vesicles appeared on the arm, in the places of the punctures, during the interval between the vaccination and the eruption of the small-pox, but that these vesicles were unattended by any inflammatory areola like that which accompanies the vaccine pustule, and which took place in the other two children inoculated with the same matter at the same time. The mother of the child has informed me, that on comparing daily the appearances on her child's arm with those on the

In those who have been attacked with the present epidemic, after having passed through the process of vaccination, the interval between that process and the attack of the varioloid disease, has varied from a few days to fifteen years. Nothing has occurred, so far as I have been able to perceive or learn, to warrant the supposition, that the modifying or preventive powers of vaccination are weakened or exhausted by time ; on the contrary, the present epidemic has been observed to attack those chiefly who were under ten years of age ; increasing years appearing in general to lessen the susceptibility of small-pox contagion.

In a great proportion of cases in this class, the eruptive fever has been severe, of from one to four days duration, and like that preceding natural small-pox, has not unfrequently been mistaken in its commencement for typhus. In many cases, however, the fever has been so slight as scarcely to have been perceptible ; and even when severe, it has almost always ceased suddenly on the appearance of the eruption, so that it has seldom

arms of the other two children, she was struck with the difference of these appearances, and suspected that the vaccination had failed on her child, even before the small-pox made their appearance. It deserves to be mentioned, that neither of the other two children who passed through the cow-pock in the usual manner, have been affected with small-pox, though they were at the time, and have been since, repeatedly exposed to the contagion of that disease.

been necessary for patients to remain in bed during the progress of the disease. In a few individuals, the fever, though severe, has not been followed by any visible eruption ; in several by one vesicle or pustule only, and in several individuals the vesicles or pustules have varied from one to twenty in number. A roseolous rash, of short duration, has very frequently preceded the appearance of the eruption, and there has occurred also a rash of a rubeolous character, which I have in more cases than one mistaken for measles. This last rash has in some instances preceded, in others accompanied, and in others followed the first appearance of the varioloid eruption.

The varioloid eruption itself has always first appeared in the form of papulæ, and many of these have decayed without becoming either vesicular or pustular. In a considerable number of cases, the papulæ, which were of a red colour, and felt perceptibly hard to the finger, were sometimes covered in the course of a very few hours with thin vesicles, containing a limpid fluid ; in other instances the vesicles were not formed till after a longer period. These vesicles have often decayed or burst by the third or fourth day, without becoming pustular, the fluid in them acquiring a slightly turbid milky colour, and have generally left behind them only a tendency to desquamation or scurfiness of the cuticle. In this, as in the other varieties of the disease in the vaccinated, the vesicles

have often been surrounded by a red areola, which seemed to be of greater or less extent and duration, according to the more or less inflammatory nature of the cutaneous texture in different individuals. This variety has, in the mildness of the eruptive fever, the strictly vesicular character, short duration and mode of disappearance of the eruption, corresponded so exactly with the descriptions usually given of the mildest varieties of chicken-pox, as not to have been distinguishable from that affection.

In other instances the vesicles which have remained for one, two, or more days, filled with a limpid fluid, have in their progress acquired a milk-like or purulent appearance. In decaying, some of these have become depressed in their centres, and have formed thin scabs, which have begun to separate by the fourth, fifth, or sixth day of the eruption, and in other instances not before the ninth or even twelfth day. In some instances the vesications continued limpid from three to five days, then became pustular, and remained in this state for two or three days longer before they began to be formed into crusts or scabs. In the greater number of these cases the crusts and scabs have fallen off without leaving behind them any tubercles, blains, or pits. In a few instances, however, the crusts and scabs have not fallen off before the twelfth, and sometimes not before the seventeenth, or even the twentieth day ; and in these cases tu-

bercles, blains, and pits, have usually been perceptible at a much later period of the eruption. In the cases in which most of the papulæ have become vesicles, it has not unfrequently happened that a few papulæ became pustules from the first, and both in the vesicular and pustular states of the eruption, many papulæ have been observed to decline without passing either into the state of vesicles or pustules. The purest and most limpid vesicles have sometimes become distinct pustules; more frequently however they have become depressed vesicles, containing a mixture of lymph or pus, with the serum, which hardened into crusts instead of scabs; when these scabs have formed, they have succeeded to pustules, and have usually had a horny character. In this *vesiculo-pustular* variety, the eruption which resembled chicken-pox in its commencement, has often assumed in its progress more or fewer of the appearances which are characteristic of small-pox.

In a very considerable number of cases, the varioloid disease, whether it has occurred in a vesicular or pustular form, has assumed in its progress the appearance of *distinct* small-pox. It has appeared to differ chiefly from that disease in the small size of the pustules, in their containing often a milk-like rather than a purulent fluid, and in their beginning often to dry and scab by the fourth or fifth day. It has not been possible, from the appearance of the eruption when vesicular, to say

whether it would continue such, or become pustular; sometimes a part only, and not the whole of a vesicular eruption has become pustular, and of the vesicles becoming pustules, comparatively few have exhibited any depressions in their centres. The more or less vesicular or pustular character of the varioloid disease in the vaccinated, has often appeared to me to be influenced by local circumstances, as well as by the individual constitution of the patients; for I have repeatedly had occasion to observe the disease exhibit a remarkable similarity of character in the same neighbourhood or district, whether it assumed a vesicular or pustular form. In this, as well as in the two preceding varieties, an inflammatory areola has often surrounded the vesicles and pustules. In some cases this areola and its pustule have had a remarkable resemblance to the areola and vesicle of cow-pock; and this resemblance has been observed to extend to the period of decay and of scabbing. The junction of several contiguous areolæ has often given an erythematous appearance to the surfaces which they occupied.

In a small proportion of the vaccinated, the eruption has been copious, and has resembled that of *coherent* rather than of distinct small-pox. Even in the greater number of this variety, the papulæ have become vesicular, and have remained such for two or more days before becoming pustular; in a very few the papulæ have passed into the state of

pustules without seeming to have been vesicular ; but whether pustular or vesicular in their commencement, the pustules in many have appeared to contain a fluid more serous or lymphatic than purulent, even till the period of their drying. The eruption in this variety has usually commenced first on the upper parts of the body and face, and come out afterwards upon the extremities, though in some instances it has appeared upon all these different parts at the same time.

In this, as well as in all the other varieties of the disease in the vaccinated, the eruption has almost always come out in successive crops, fresh eruptions sometimes appearing even after the fifth day ; and the occurrence of these successive crops has in the severer cases been accompanied with the continuance of some degree of the eruptive fever. It is in consequence of this succession of eruptions, that papulæ, vesicles, pustules and scabs, have been so often observed co-existing on different parts of the body in the same individual, and exhibiting the motley appearance of an eruptive disease, existing at the same time in its commencement, progress, and decline. The size of the pustules have, like those in primary and secondary small-pox, varied exceedingly, and their figure also has been regular and irregular, conoidal, lenticular, and globate. In this variety of modified small-pox, the pustules have seldom arrived at their height even on the face before the fifth or

sixth day; on the trunk not till the seventh or eighth day; on the extremities not till the eighth or ninth, and on these, particularly the lower ones, sometimes not before the tenth or twelfth day. In drying, the pustules have usually formed brown-coloured semi-transparent horny scabs, the separation of which has been followed by tubercular elevations on the spots which they occupied, blains or permanent pits of the skin. In some of the severer cases, a considerable degree of secondary fever has occurred, accompanied by swelling of the face, increased inflammation of the internal fauces, hoarseness, and ptyalism; but these symptoms have almost always been of short duration, and have left the patient in the possession of a degree of health and vigour very different from that enjoyed by those who had passed through eruptions equally copious, of natural coherent small-pox.

In a few instances of the coherent modified as well as of the coherent natural small-pox, small vesicles containing a limpid fluid have been observed to form upon the tops of the pustules about the third or fourth day; in other instances, particularly towards the decline of the eruption, vesications of a greater or smaller size have occurred in the interstices of the pustules, resembling those of pemphigus, while in others these vesications or blebs were seen extending over the pustules for a considerable way round their basis, including

sometimes two, three, or more small-pox pustules, visible through the transparent fluid of the blebs or vesications. In other instances, again, considerable portions of the skin, particularly of the extremities, were attacked by an erysipelatous inflammation, followed by vesications, raising the cuticle in the interstices of the pustules, and giving to the part affected the appearance of having been scalded or blistered. Portions of the contents of the larger pustules, blebs and vesications, having been absorbed or discharged by bursting, they have exhibited a flaccid appearance, and in their decline have seemed to contain air as well as serum. It was impossible to have observed the diversified appearances of coherent modified small-pox, without recognizing in them, and being astonished at, the striking resemblances which they bore to the different varieties of spurious small-pox, described by practical authors under the names of crystal-pock, glass-pox, chicken-pock, horn-pock, swine-pock, bladder-pock, blebs, &c. &c.

In above 40 of those who had been previously vaccinated, the varioloid disease has occurred for the second time, after intervals varying from a few days to several years. In some of these cases it exhibited, in the first attack, the appearance of chicken-pox, and in the second that of small-pox; in others, again, in the first attack it resembled small-pox, and in the second chicken-pox. In some

the disease has in both attacks resembled chicken-pox, and in others small-pox. I have seen but one instance only of a person who had been vaccinated, having the varioloid disease for a third time. The two last attacks which this person experienced were at an interval of eighteen months, and the disease was in both instances pustular in its origin and progress. It is worthy of being mentioned, that a considerable number of those who have been attacked with the varioloid disease after vaccination, had, after passing through that process, been in the interval inoculated with small-pox, or exposed to its contagion, but without receiving from this any infection.

Of the 310 individuals whom I have seen affected with this epidemic, after having gone through the process of vaccination, one only, the history of whose case is to be afterwards detailed, has died; a result which to me appears truly astonishing, when I reflect on the general severity of the eruptive fever, on the great diversities in the state of health, and in the constitutional tendencies of the individuals attacked by it; and on the circumstances, often so very unfavourable to recovery, in which many of these individuals have been placed.

It has been impossible to see the general mildness of the varioloid epidemic in those who had undergone the process of vaccination, and the severity, malignity, and fatality of the same disease in the unvaccinated, and not to be convinced of the

great and salutary powers of cow-pock in modifying small-pox, in those who were afterwards affected with this disease. Proofs cannot be imagined more convincing and satisfactory of the efficacy of the practice of vaccination, and of the incalculable benefits bestowed upon mankind by its discoverer, than those I have had the pleasure of witnessing. It has been very agreeable also to observe, that the terrors at first excited by the occurrence of this varioloid epidemic, in the families of those who had undergone cow-pock inoculation, have gradually given way in the progress of the disease; and that the comparison of small-pox, in their modified and unmodified forms, has often forced a conviction of the advantages of cow-pock inoculation upon the minds even of the most ignorant and prejudiced, and induced them to seek protection for themselves and their offspring in a practice which they had formerly neglected or despised.

FROM the preceding description you cannot have failed to perceive the great differences that have occurred in the local and constitutional symptoms of this epidemic. So striking are these differences, that many practitioners of experience have not hesitated to ascribe them to the operation of contagions specifically distinct. To the examination

of this opinion I must now, therefore, call your attention.

Had the unvaccinated alone been attacked by the varioloid epidemic, nothing, it appears to me, but the most unreasonable scepticism could ever have suggested a doubt of the disease being genuine small-pox. All room for hesitation with regard to this point seems to be removed, not only by the symptoms of the disease, but by the great mortality, with which it has been accompanied ; a mortality in this class of patients equal, I believe, to what has attended the most malignant epidemical small-pox of which any accurate accounts have been recorded.

It is only in the first and second varieties, as I have described them, that any doubts concerning the genuine variolous nature of the disease could ever, I apprehend, have been entertained. These varieties exhibited, it must be acknowledged, many of the appearances which have been regarded as characteristic of chicken-pox : but they occurred in the midst of cases of coherent or confluent small-pox ; they could often be distinctly traced to small-pox infection ; and they gave rise to genuine small-pox, in all the various forms of that disease. We must, therefore, either refer these varicelloid cases to the operation of the same contagion that produced the others, or suppose that, in every situation in which the varioloid disease has appeared, there have been two contagions existing

together at the same place and at the same moment, different but inseparable ; sometimes the one and sometimes the other predominating. But in the adoption of this hypothesis there are difficulties that seem to me insurmountable. In some, the disease exhibited the mildest form of chicken-pox ; while in others, of the same family, living in the same house, and sleeping in the same bed, it assumed the most aggravated forms of natural small-pox. If there had been two contagions specifically distinct, existing in the same place, and acting at the same time, surely the greater number of persons exposed to their influence, and not secured from their operation, must have taken both diseases ; but this, so far as I know, has not been observed, either in Edinburgh, or in any of the other places in which the varioloid disease has appeared. Those who believe, therefore, that two contagions have operated in the production of this epidemic, must either maintain, that wherever the chicken-pox contagion prevailed, the small-pox contagion was excluded, and that wherever the virus of small-pox took effect, the infection of chicken-pox was prevented ; or, admit that the varicelloid form of the epidemic was produced by the same contagion that gave birth to all its other forms.

It has been, I suspect, the occurrence of similar varicelloid cases in former epidemical small-pox, which in particular instances, has misled practi-

tioners in judging of the real nature of varioloid diseases, and given rise to controversies which have tended more to retard than to promote our knowledge of these diseases.

The number of the varicelloid cases to which I have referred, would probably have been greatly increased, had not the present epidemic been of a nature unusually severe and malignant. But as this number has not amounted, according to my observation, to more than one-twelfth of the unvaccinated affected with the varioloid epidemic, we must either admit that the disease in this twelfth part has been small-pox, or we must suppose that chicken-pox, even when they prevail epidemically, may attack only an inconsiderable number of those who are subjected to the influence of their contagion ; a supposition which is obviously at variance with all our notions regarding the contagious nature of that disease.

Even if the number of these varicelloid cases had been much greater than it was, still it might be asked, why, in an epidemic exhibiting so many varieties in its appearance, must one of these varieties be supposed to be the production of a contagion different from that which is allowed to have produced all the other varieties ? It will not surely be alleged, that it was the vesicular character of the varicelloid cases which requires the supposition of a contagion different from that of small-pox, since it is universally allowed that the most malig-

nant form in which small-pox can occur, the watery or crystalline, is a strictly vesicular disease. Neither will it be alleged, I imagine, that there was any thing in the character of the eruptive fever, or in the duration of the eruption, to prove that the disease in these cases was produced by a contagion different from that of small-pox, since it has been already stated, that though, in some of the cases alluded to, the eruptive fever was mild, in others it was severe, and of several days' duration; and that, whilst the eruption in some began to decay by the third or fourth day, in others it did not begin to undergo that change before the seventh, eighth, ninth, or even a later day. But if diversities such as those which have occurred in the constitutional symptoms and external appearances of the varioloid disease in the unvaccinated are to be supposed to imply a difference in the nature of the contagion by which they are produced, then it is obvious that we ought to suppose as many contagions to have operated in the production of this epidemic, as there have occurred distinct varieties in the disease. For surely there was less difference between the varicelloid form of this epidemic, and that of distinct small-pox, under which it frequently appeared, than between distinct small-pox, and the pustular and vesicular forms it assumed, when it occurred as confluent small-pox.

On the whole, then, I would submit to your consideration,

1st, That the varicelloid cases, with the exception of one, about which no pains were taken to trace its origin, because I believed it at the time to be a case of chicken-pox, have all occurred in situations in which, in point of exposure and time, they could only be referred to the operation of the contagion of small-pox ; and that in the situations in which varicelloid cases have been observed to occur first, small-pox have appeared afterwards, precisely at the period they might have been expected to occur, on the supposition of the varicelloid variety being capable of giving rise to the other forms of small-pox.

2dly, That only two of the 205 individuals who had not previously passed through small-pox or cow-pock, have been affected with the varioloid disease in the form of small-pox, after having in the course of the present epidemic, passed through it in the form of chicken-pox.

3dly, I have not seen any one who had passed through the present varioloid epidemic in the form of small-pox, subsequently attacked with the disease in the form of chicken-pox ; and,

4thly, I know, that even of the small number of cases resembling chicken-pox which have occurred in the unvaccinated, several have been declared to be small-pox by some of my professional brethren, who still continue to believe in the separate and independent existence of chicken-pox. If the opinion, therefore, of these gentlemen, with regard

to those cases, be correct, as I am persuaded it is, the number of instances in which chicken-pox, as a disease specifically distinct from small-pox, can be supposed to have occurred in the unvaccinated during the present epidemic, will be greatly diminished, if they do not altogether disappear; and it will then remain for those who still contend for the separate and independent action of the contagion of chicken-pox, to account for the smallness of the number of the unvaccinated who have been attacked with this disease, or how it should have happened, that of one hundred and fifty-five individuals whom I have seen pass through the present epidemic in the form of small-pox, not one should afterwards have been attacked with chicken-pox, though, according to the supposition of the co-existence of chicken-pox with small-pox, most if not all of these individuals must have been exposed to the contagion of chicken-pox. On the supposition also of the co-operation of the contagions of chicken-pox and small-pox in the production of the present epidemic, it will require to be explained, why those who have been exposed to the joint action of these contagions, should not have been affected with their respective eruptions, either simultaneously or in succession, in a manner analogous to what has been observed in those who have been exposed at the same time to the contagion of measles and of small-pox; the more so, that it is supposed to have been ascertained by ex-

periment as well as by observation, that chicken-pox and small-pox may not only co-exist in the same individual, but that they may reciprocally precede or follow each other. From the events, however, which have occurred in the progress of the present epidemic among the unvaccinated, it would seem, either that the contagions of chicken-pox and of small-pox are capable of mutually preventing the action of each other, or that one contagion can alone have operated in the production of the present varioloid disease. Whether having passed through natural small-pox in the variceloid form be sufficient to protect the constitution against a future attack of that disease, or whether the matter contained in the vesicles be always secreted in a state capable of producing small-pox by inoculation, are points which must be left, I conceive, for future enquiry.

There is nothing which has occurred in the progress of the present epidemic, that has been to me matter of so much surprise, as the number of persons who have been affected with small-pox for the second time. My unwillingness to admit the possibility of this occurrence, induced me to conceive that the cases first supposed to be examples of secondary small-pox, must be in reality, whatever they might be in appearance, cases of chicken-pox. But a short time was sufficient to remove this error; for the cases of secondary small-pox were observed in circumstances in which it was impossible to sup-

pose them to be produced otherwise than by the contagion of natural or of modified small-pox; and they, again, were observed in their turn to produce distinct, coherent, and confluent small-pox. The occurrence of the first attack of small pox in these cases has always been ascertained by evidence which appeared to me to be in every respect satisfactory; and this evidence has in most instances been corroborated by distinct marks left on the body by that disease. It became necessary, therefore, either to deny altogether the existence of small-pox in the present varioloid epidemic, and to renounce all faith in testimony and observation, or to admit that the varioloid disease, in the 41 individuals whom I have stated to have seen affected with secondary small-pox, was actually that disease. These cases of secondary small-pox have all been seen and admitted to be such by other practitioners besides myself, several of whom still continue to believe in the separate existence of chicken-pox. The reality, therefore, of the recurrence of small-pox in these cases does not rest upon my single opinion. Besides, I know well that similar cases have been observed by other practitioners, in several of the places in which the present epidemic has prevailed. Indeed, I am satisfied, from what I have seen of such cases, that the instances of secondary small-pox which have occurred in the present epidemic, must have been considerably greater than appears from the cases

reported to me ; for the secondary small-pox which I have seen, have frequently occurred in a form so like chicken-pox, that such cases must have often, in other instances, I conceive, been mistaken for that disease. The greater comparative mortality also, which, during the present epidemic, has been observed in cases acknowledged to be secondary small-pox, than in those who had passed through the process of vaccination, is in some measure to be accounted for, I should imagine, by practitioners seldom admitting, unless in very severe cases, varioloid eruptions in those who have previously passed through small-pox, to be that disease, and by their considering all the milder varioloid eruptions as proceeding from the contagion of chicken-pox.

In illustration of these suggestions, I may remark, that since the commencement of the present epidemic, I have met with several persons deeply marked by small-pox, who, when I enquired of them if they had ever had the chicken-pox, have answered in the affirmative, adding, that the disease had been declared to be chicken-pox by their medical attendants, but that their parents had believed it to be the small-pox, because this eruption had appeared in them at, or soon after the time that some others of their family were inoculated or confined with small-pox : And I have met with other persons, again, less deeply marked, who informed me that the marks which I saw upon their faces,

were not those of small-pox, but of chicken-pox, with which they had been attacked after having passed through regular inoculated small-pox, but which small-pox had not left any mark beside that of the inoculation.

The varicelloid form which secondary small-pox have so often assumed in the present epidemic—the great resemblance which they have, in some cases, exhibited to the descriptions given of the other varieties of spurious small-pox—and the usual non-occurrence of secondary fever even in the severer cases—have all tended to confirm me in the justness of a suspicion which you will find expressed in the last part of my third conclusion; and to induce me to believe, that, by having once suffered an attack of small-pox, the human constitution is not only rendered less liable to a future attack of the disease, but that, when this attack happens, the disease is in a great measure deprived of its usual malignity and danger. Whether the greater severity and mortality of small-pox after small-pox, than of small-pox after vaccination, which has been observed in the present epidemic, is to be ascribed, as I feel inclined to ascribe it, to the more advanced ages of the subjects in whom the secondary small-pox have been observed to occur, or to the modifying power of small-pox being actually less efficacious than that of cow-pock, are points which we have not yet sufficient data to enable us to determine. The facts, however, which

I have stated in my description seem to me to establish, in the most satisfactory manner, the existence of this modifying power in small-pox; though of the existence of such a power I have not been able to find any hints, far less any direct or satisfactory proofs, in the past records of medicine. I cannot but regard the existence of this modifying power as affording a strong additional proof of the identity of secondary small-pox with chicken-pox, horn-pox, swine-pox, &c.; and as confirming, in a remarkable degree, the suggestion of Mr. Bryce, that secondary small-pox is the disease that was formerly denominated the horn-pock.

If, as it appears to me, it has been proved by a mode of reasoning which comes as near to demonstration as the nature of the subject will admit, that the contagion of chicken-pox, or a specific contagion distinct from that of small-pox, has not operated in the production of any part of the present varioloid epidemic in the unvaccinated, then it will follow, I conceive, that the contagion of chicken-pox, supposing it to have operated in the present epidemic, can have attacked those only who had undergone the process of vaccination; and, upon this supposition, it is evident that it must have produced either the whole or a part only of the varioloid eruptions which have appeared in the vaccinated.

It has not, I believe, ever been imagined that the whole, but that a part only of the varioloid

eruptions, which, during the progress of the present epidemic, have appeared in the vaccinated, are to be considered as the effects of chicken-pox contagion. What that part, however, has amounted to, or in what proportion it has been to the whole, no one, so far as I know, has presumed to determine. With respect to myself, I have already mentioned the difficulty which I felt at first in admitting the existence of modified small-pox ; a difficulty which arose solely from the great resemblance that seemed to me to exist between the eruptions which were pointed out to me as modified small-pox, and those which I had been accustomed to consider as chicken-pox ; and this difficulty has not been diminished by any thing which I have been able to learn from observation, from reading, or from conversation with my professional brethren. Prepared, as I conceived myself in some measure to have been, for the observation of such a malady as the present, by the study of cutaneous affections, and by a strict attention, for a long period, to the diagnostic symptoms of eruptive diseases, it has been often to me a source of mortification to find, that I was not able to perceive in individual varioloid cases those peculiar marks or characters by which many of my professional brethren have been enabled to satisfy themselves of a difference in the phenomena of chicken-pox and modified small-pox. Indeed, while I continued to believe in the separate and independent existence of

chicken-pox, I had been repeatedly informed, that cases which I was convinced, from the symptoms, were cases of chicken-pox, were not chicken-pox, but cases of modified small-pox ; and since I have begun to doubt of the independent existence of chicken-pox, I have as often been informed, that the cases which I considered to be cases of modified small-pox, were not such, but cases of chicken-pox. I have used every means in my power to acquire the information that would enable me to guess, even with tolerable certainty, at a distinction which I am told is made with little difficulty by others, but all to no purpose ; for I am at this moment as far from being able to distinguish modified small-pox from the eruptions which I have been accustomed, for thirty years, to consider as chicken-pox, as I was when I first began to observe the present varioloid disease. I will not, however, conceal that, in the course of my attention to the appearances of the varioloid eruptions in the vaccinated, the mortification I have been made to suffer from my ignorance has been in some degree lessened, by my perceiving, that a case which was declared to be chicken-pox by one practitioner, has often been pronounced to be modified small-pox by another, apparently equally well informed ; by my observing, that practitioners have often had occasion, in the course of varioloid eruptions, to alter the opinion which they had at first entertained of their nature ; by my having been able, not unfrequently,

to trace cases, which were declared to be chicken-pox, to the infection sometimes of modified and at other times of natural small-pox : and by my never having yet met with a single practitioner who, in determining the varicellous or variolous nature of an eruptive disease, would suffer himself to be guided in his judgment by any written or verbal rules of diagnosis.

Yet, though unable myself to perceive in the varioloid eruptions, as they have occurred in the vaccinated, those peculiar characters by which others are said to have found no difficulty in determining what were chicken-pox and what were modified small-pox, I was for a time disposed to admit the existence of this discriminating power. Many circumstances, however, which it is impossible, and which, were it possible, it would be improper for me to relate, have led me to doubt whether the belief in the possession of this power has any other foundation, than a natural unwillingness in practitioners to think that they can have been deceived themselves, or that they have unintentionally misled those who in this matter had placed confidence in their experience and judgment.

After the most attentive observation and careful review of the 310 cases in which, since June last year, I have seen the varioloid disease attack those who had undergone the process of vaccination, I am not able to conceive any other contagion besides that of small-pox to have operated in any of these

cases, unless I were to admit the operation of such a contagion in the production of a very small number of instances, in some of which the disease has appeared in an extremely mild vesicular form of short duration, and the matter taken from the vesicles of which, when introduced by inoculation, has failed in producing any constitutional effects. But for a more particular account of these cases, I am happy to be able to refer you to the following communication on this subject with which I have been favoured by Mr. Bryce.

St. Andrew's Square, Aug. 4, 1819.

DEAR SIR,

I some time ago received your paper containing observations on varioloid diseases, for which please accept of my best thanks. I trust it may have the effect of drawing the attention of medical men to that subject, and of leading to much useful information concerning the nature of those diseases of which it treats.

To me your observations are particularly interesting, as serving in a great degree to confirm certain opinions which, after several years of diligent observation in the same field of enquiry, I had been led to adopt, and to propagate amongst my correspondents, in explanation of the occasional occurrence of small pox after vaccination.

The opinions to which I allude, are,

1st, That a second attack of small-pox, whether

the person had undergone the disease by inoculation or by natural infection, has at all times been a much more frequent occurrence than is at present generally imagined.

2d, That these second attacks of small-pox have been in general more mild than the first attacks ; and that the *horn-pock* and *stone-pock*, names known long before the days of vaccination, occurring after small-pox, are really to be considered as second attacks of that disease.

3d, That the eruptive disease which has of late prevailed so much in Edinburgh, and in various parts of Scotland, after vaccination, is exactly of the same nature as the horn-pock ; *i. e.* like the horn-pock, it is produced by exposure to the infection of small-pox, and is capable of producing genuine small-pox in constitutions not protected against the full influence of that disease.

4th, That the same general rule ought therefore to be applied to the cow-pox and to the small-pox, with regard to their powers of protecting the human constitution, which has undergone their influence, against a future attack of small-pox. But that there is on record more instances of persons suffering severely, nay fatally, from what was considered to be a second attack of small-pox, than from small-pox after what has been considered perfect vaccination.

5th, That the appearance of these eruptions after vaccination, or after small-pox, in some persons

and not in others, or their being more frequent in one year than in another, is to be attributed to certain peculiarities, either in the person affected, or in the epidemic constitution of the season, or to the greater or less degree of malignancy in the prevailing epidemic; the operation of which circumstances, though we cannot explain it, is yet readily admitted in similar instances to produce similar effects.

6th, That in estimating the advantages arising to society from the practice of vaccination, the cow-pox is always to be compared with the small-pox; and, as they may be considered equally powerful in shielding the human constitution against a future attack of small-pox, the other advantages resulting from vaccination are so many, and so conspicuous, as to admit of no hesitation in concluding, that the former ought on every occasion to be encouraged and the latter repressed, with all our most active exertions.

I have sent you a copy of my correspondence with Dr. Adam, jun. of Forfar, to show you that these opinions formed the basis of my correspondence with my medical friends, so long ago as 1813, in explaining to them the nature of those febrile eruptions which were about that time becoming very frequent in some parts of Scotland. And all the observations which I have been able to make since that time have still served to confirm these opinions, as you will find by a letter which I ad-

dressed to Dr. Duncan, jun. in the 56th Number of the Edinburgh Medical and Surgical Journal.

I am fully aware that other causes for the occurrence of those eruptive attacks after vaccination, have been alleged by persons to whose names high authority must be attached in this branch of medical practice, viz. that they proceed from imperfect vaccination, either from the matter used for inoculation being deteriorated, or from an insufficient number of vesicles being excited to saturate the system, or excite the full action of cow-pox, during the vaccine process. But the more I reflect on these alleged causes, and compare all the facts concerning cow-pox and small-pox which have occurred within my own observation during the last twenty years, and particularly during the last five years, the more I am convinced that they are quite inadequate to explain this phenomenon, and indeed that the occurrence of these eruptions is only to be explained by adopting the opinions stated above.

I find, however, that, from your investigations, you are inclined to advance a step further than I think my observations entitle me to follow you. You appear to think that you have observed sufficient facts to entitle you to consider the chicken-pox of Dr. Heberden to be a variety of small-pox, *i. e.* to arise from the contagion of small-pox, and to be capable of producing the genuine small-pox in persons unprotected by vaccination, or by a former attack of small-pox.

Since the time of the introduction of vaccination until lately, I have seldom had occasion to see the small-pox epidemic under a very severe form, and then the eruptions which appeared occasionally amongst the vaccinated on exposure to small-pox contagion, were almost entirely of that hard and tubercular kind which has been denominated the horn-pock; of late, however, while the small-pox raged in this neighbourhood, and in several other districts in Scotland, under a more severe form than had been known in this country for perhaps upwards of forty years, the eruptive disease, with which those who had been vaccinated, as well as those who had formerly undergone an attack of small-pox, have been frequently affected, has also been observed to be considerably more severe; the eruption has been more numerous, and it has approached nearer in its progress to cases of mild and distinct small-pox, having been in many instances papular, vesicular, and frequently pustular, in succession. Of this kind I consider to have been the case of Dr. Monro's oldest son, and also some other cases which I had an opportunity of seeing about the same time. Most of these cases have, from their appearance, and the progress of their symptoms, been called chicken-pox by many medical men of great eminence and experience. I have long, however, regarded them to be, and it is a satisfaction to me to find that my opinion agrees with your observations, that they really are cases

of small-pox, modified or rendered milder by previous vaccination, or by a previous attack of small-pox; and I am well convinced that this nearer approach to regular small-pox than what I had formerly observed, is entirely to be attributed to a greater than usual malignancy in the nature of the lately prevailing epidemic; and from what I have seen, I will venture to predict, that as the epidemic small-pox becomes more mild, the cases of eruption after vaccination will also become more mild, and that they will then be again generally observed under the form of that slight affection the horn-pock.

But there is another eruptive disease which I have long been in the habit of considering as the chicken-pox of Dr. Heberden, and which I have certainly not observed facts which could at all justify me in classing it as a variety of small-pox; nay my observations lead me to consider it as a disease entirely different in its nature from the small-pox.

This eruptive disease, as I have observed it, generally attacks with little or no fever, the appearance of vesicles on the shoulders, neck, and breast, being often the first symptom observed. The vesicles are often, when first seen, about the size of a split pea, perfectly transparent, and covered only by the cuticle, as thin as that separated by a scald or by a blister; they generally have at first an inflamed areola, but this seems also to be

confined to the cuticle, and there seems to be little if any hardness in the true skin beneath or around them. On puncturing the vesicle, the clear lymph is wholly evacuated, the cuticle falls flat down, and very little if any hardness is perceived on passing the finger over the collapsed vesicles. The vesicles generally increase in number for several days ; and while new vesicles are appearing on some parts of the body, those which had first come out are beginning to shrivel, and the fluid contained in them has become somewhat milky. Many of them are broken by the second or third day, and have a small crust formed on the cuticle, which adheres to the skin beneath, and is surrounded by an opaque or milky fluid, confined by the shrivelled cuticle. When the eruption is numerous, the body has the appearance of having been exposed to a shower of boiling water, each drop of which had occasioned a vesicle or blister : and these are generally on the second and third day, when turgid, broader at the summit than at the base. When the vesicles remain unbroken for four or five days, as is sometimes the case, the covering of cuticle, as well as the contained fluid, become opaque, and the latter purulent. The vesicle is then much flattened, and in this stage of the disease it is scarcely to be distinguished from small-pox, unless by the very thin, delicate, and shrivelled appearance of the covering cuticle.

The most characteristic symptoms of this erup-

tive disease appear to me to be the slight degree of eruptive fever, the rapidity with which the fluid is secreted or rather effused into the vesicles, and the perfect transparency and thinness of the whole vesicles, even in the unvaccinated, during the first and second days of their appearance, very unlike the firm, hard, and solid tumours which form the eruption of small-pox at the same period of that disease.

I have had an opportunity of seeing this disease in ten different families during the last ten months, and in these families, twenty-two children have been affected with it. Of these twenty-two children, two were so young as not to have been vaccinated, one being only six weeks, the other only three weeks old. In both of these infants, the disease maintained its purely vesicular character, and it was fully as mild in them as in the vaccinated children, from whom they received the infection.

One of these children was soon afterwards vaccinated by my friend Dr. Abercrombie, who also attended this child during the vesicular eruptive disease, and who was fully aware of the importance that might be attached to the progress of the vaccination, in ascertaining the nature of the previous eruption; and after the most careful examination, in every stage of its progress, the vaccination was declared by him to have proceeded with the most perfect regularity throughout its whole course.

Another infant, whom I perfectly recollect to have had this vesicular disease several years ago, was soon afterwards vaccinated by myself, and passed through every stage of cow-pox with perfect regularity.

I have just now received the following account of this vesicular disease from our friend Dr. Alison, whose assiduity and accuracy in this field of observation is well known to you. Several of the cases mentioned by Dr. Alison were not seen by me. In some the disease spread from the vaccinated to the unvaccinated, and uniformly maintained in them its mild and vesicular character. In two instances the cow-pox ran its regular course, although the patients underwent this vesicular disease in a mild form between the period of inoculation, and of the appearance of the vaccine areola, *i. e.* during the local progress of the vaccine vesicle, the inoculation having in both been performed only the day before the appearance of the vesicular disease. The following is Dr. Alison's very interesting account :—

“ Rochsoles, Aug. 2, 1819.

“ DEAR SIR,

“ I am sorry that I have not been able, till now, to put in writing the particulars you wished to have from me in regard to the cases of eruptive disease, which you consider as chicken-pox, which I have lately seen.

“ I took no notes of these cases at the time, and can only inform you of the particulars which made most impression on me when I saw them, because they appeared of importance in relation to the question, whether these cases proceeded from the same contagion as true small-pox ?

“ In the first child I saw in Jamaica Street, ——— Milne, at No. 25, the eruption appeared on the third or fourth day after vaccination. I remember perfectly, that when I saw this child the first time at the Dispensary, we agreed there, that the appearance of the eruption corresponded to the descriptions of chicken-pox. This was on the second or third day of the eruption. I remember saying, that if we could trace that to small-pox, or small-pox to that, we might consider the identity of the two contagions as nearly certain.

“ The vaccination in this child went the regular course, and is marked satisfactory in the Dispensary book.

“ Since then, I have seen, I think, ten other cases in that and the neighbouring stair, (No. 23,) and the appearance of the eruption has been very similar in all, for the first four days, although it has varied considerably after that period of the disease. One of the mildest cases was that of the youngest child we saw together, only a fortnight old, and never vaccinated. All the others, after Milne, had been vaccinated, and had satisfactory marks on their arms.

“The eruptive fever was always slight, and generally short, but two or three were said to have been ill three days before the eruption appeared, and these were the severest cases.

“What appeared most characteristic of the eruption was, the formation of vesicles within less than twenty-four hours of the appearance of the papulæ—filled with a transparent straw-coloured fluid, exactly resembling small blisters. The cuticle covering and containing the fluid of these vesicles was quite thin. They continued to increase in size for two or three days after they were first seen, but preserved their original shape, and *never shewed depressions on their tops*; and for the first three or four days from their appearance, their size seemed to me to bear a much greater proportion to the size of the inflamed bases, on which they stood, than in any eruptions in vaccinated or unvaccinated persons, which I remember to have seen distinctly proceeding from the infection of well-marked small-pox. Hence, when the vesicle was opened, within the first three or four days from its appearance, as Dr. Abercrombie directs, or broken, as it often was, by scratching, it subsided completely, and no elevation of the skin, which could be called tubercle, could be felt on passing the finger over the place.

“In almost all the cases of modified small-pox which I have seen—in vaccinated persons, exposed to the infection of small-pox—the pustules, during

the greater part of the time that their contents continued crude, or watery, have shown depressions on their tops, smaller indeed, but not less distinct, than those in regular small-pox. Where I have failed of seeing this appearance in these cases, it has always appeared that the inflamed bases constituted by far the greater part of the eruption, and little or no fluid was obtained by puncturing; the eruption being merely tubercular at first, and horny scabs forming after some days on the tops of the tubercles. It seems very singular, if the contagion, in this little epidemic, was that of small-pox, that ten cases should occur in succession, the appearance of which, for the first four days, should be so different from that of the other cases of modified small-pox I have seen; there being here abundance of fluid in the eruption—very little of the inflamed bases, or tubercular appearance—and yet no depressions on the tops.

“After the fourth day, the vesicles did not increase in size—but in several instances the contents of some of them became distinctly purulent. The greater part were broken and formed scabs about this time. Some shrivelled without breaking. After this time, in several cases, the inflammation about them extended, and the fever increased, and in three cases, there was swelling of the face, and closing of the eyelids. In the child Taylor, who died, inflammation took place twice around some

of the scabs, and the second inflammation was subsiding when she died.

“The inflammation, which took place around the vesicles, about the time that they began to form crusts, gave them the appearance of tubercles, with crusts on their tops, late in the disease; and there were many cases which I think it would be impossible to tell, after the fourth or fifth day, from the ordinary appearance of modified small-pox, notwithstanding the differences which seemed to me to exist, during the first four days of the eruption.

“I did not see the generally diffused rash in the child Taylor, which appeared the day before the first vesicles appeared, but was told that it lasted two days, and was like that of the eldest girl M’Rae, at the foot of the same stair. The rash in her I saw, and could not have distinguished it from scarlatina. In her, also, it immediately preceded the vesicular eruption. There were no cases of scarlatina, that I could hear of, in the neighbourhood.

“The case of the child Taylor must, I think, be considered a very anomalous one, if we suppose the disease small-pox, because the eruption, so far as I remember, was no where confluent. This child died on the 16th day from the first appearance of the eruption;—the parotid glands in her, or lymphatic glands in the neighbourhood of the parotids, were swelled from the first, and three days before her death, when I saw her tonsils, they

were distinctly ulcerated. From these circumstances, and from the inflammation of the membrane of the nose, and constant acrid discharge from the nostrils, her situation, during her nearly comatose state for some days before her death, seemed to me more like the last stage of scarlatina than of small-pox.

“There were some cases of well-marked small-pox, about the same time, in which a secondary inflammation took place about the scabs, in the decline of the disease, much as in the child Taylor; and this led in two or three cases to ulceration, and in one to extensive gangrene, which proved fatal.

“I told you, that I saw two cases of eruption exactly similar to that in Jamaica Street, in the Grassmarket, (West Hamilton’s Close, highest outside stair.) One of these was in a child that had a good mark of cow-pox on its arm—the other in a child vaccinated at the Dispensary the day before the eruption appeared. The appearances in the two were exactly alike;—the vesicles were at their full size in three days, and were crusted on the fifth. The vaccination, in the last-mentioned case, went its usual course—the areola forming on the eighth day from vaccination, the seventh from the appearance of the vesicular disease. Two children, never vaccinated, and whom the mother would not allow us to vaccinate, live next door to these two; but when I called last, these had taken no complaint.

“In the Horse Wynd I saw a child, about a month ago, in the fourth day of an eruption, which, as far as I could judge at that period, was similar to the above. This child had been vaccinated. Ten days ago, I saw in the same house another child, with an eruption, which was formed into crusts in five days, and which I am sure was the same as in Jamaica Street, having seen it from the second day. This child had never been vaccinated.

“I should have mentioned, that Mr. M‘Intosh inoculated one child with *lymph* taken from one of the children in Jamaica Street, and two others with *pūs*. The first produced no effect; the two last produced, as he informed me, a good deal of local erythematic inflammation, with vesicles on the inflamed portion of skin, but no general eruption.

“The inefficacy of inoculation with the matter of this eruption—the uniformity of the appearances presented by it in the vaccinated and unvaccinated—and the differences of the appearances presented by it, *during the first three or four days*, from the usual appearances of modified small-pox, are the three points which seem most likely to establish a diagnosis, and to which attention should chiefly be directed.

“I have seen several cases, in which an eruption certainly proceeding from the infection of small-pox in unvaccinated persons, was formed into

crusts within five days ; but I saw only one of these before the formation of the crusts. This was one in Blackfriar's Wynd, which I showed to Dr. Abercrombie. During the first four days it seemed to me to be exactly similar to modified small-pox, certainly proceeding from small-pox in vaccinated persons. After the fourth day, I could not depend on any marks of distinction between it and such cases as those in Jamaica Street.

" I have troubled you with a long detail ; but, without putting down all that I recollect of these cases, I could not be sure of giving you what you may wish to have. I am, Dear Sir,

" Your's very faithfully,

" W. P. ALISON."

'This disease is readily communicated from one person to another, who has not already undergone its influence by natural contagion ; but it is very remarkable, that although I have taken matter from the vesicles, and have known it taken from them by others, on five different individuals, with the greatest care, at all periods of the disease, and at all seasons of the year, and have inoculated, and seen others inoculate with it, children who had never undergone either the cow-pox or the small-pox, to the number of thirteen different persons, yet in none of them was this disease, nor any thing like small-pox, ever produced.

In one instance a considerable degree of erysi-

pelas supervened at the inoculated part almost immediately after the operation. In one or two others, a slight degree of redness at the inoculated part was observed for two or three days ; but in all the rest the matter seemed to produce no effect, although the operations were performed under the most favourable circumstances.

I shall now state the following reasons, resulting from the observations which I have made respecting this vesicular disease, as sufficient, in my opinion, to warrant me in concluding, that the chicken-pox is in its nature quite distinct from the small-pox :

1st, The character of this vesicular disease, or the chicken-pox, particularly during the first three days of the eruption, appears extremely unlike the character of the small-pox.

2d, When this disease affects the unvaccinated, it maintains a character as mild and purely vesicular, as when it affects those who had been vaccinated.

3d, Children who have been affected with this disease, have, within a month afterwards, undergone the process of vaccination in the most regular manner.

4th, The great difficulty, if not impossibility, of propagating this disease by inoculation.

5th, I have never observed this disease giving

rise to small-pox, nor small-pox giving rise to this disease.

I remain, Dear Sir,

Your most obedient Servant,

JAMES BRYCE.

*To Professor Thomson,
Edinburgh.*

Neither my observation of the varioloid epidemic, as it has presented itself in the various places in which I have seen it prevail, nor the particular attention I have given to the appearances and progress of several of the cases referred to in the letter of Mr. Bryce, allow me to coincide with him in the opinion that the form of the varioloid eruption which I have called the *mild vesicular* small-pox, is produced by the operation of a contagion specifically different from that which has given rise to all the other varieties of the epidemic. I cannot, however, but regard Mr. Bryce's frank and open communication of this opinion, in his letter to me, as affording at the same time a proof of his anxious desire for the ascertainment of the truth in the matter to which it relates, and of the zeal with which he is animated for whatever can be supposed to promote the interests of vaccination. In availing myself of the liberty he has given me of examining freely into the grounds upon which his opinion rests, I trust he will do me the justice to believe that it would have been peculiarly gratifying to me, that

the result of my observation of the present varioloid epidemic had been confirmed by his experience—a pleasure which, I am sanguine enough to hope, I may still obtain, if I can prevail on Mr. Bryce to follow me through the details of the statement into which the opinion expressed in his letter now obliges me to enter.

You must have observed that, in the preceding description of the varioloid epidemic, and in the reflections upon the facts stated in that description, both of which had been submitted to Mr. Bryce's inspection, I have carefully endeavoured to avoid all reference to the opinions of Dr. Heberden, and to confine myself as strictly as possible to the consideration of the question, Whether more than one contagion can be supposed to have operated in the production of the present varioloid epidemic, either in Edinburgh, or in any of the other places in which I have had an opportunity of observing this disease? The point more immediately at issue is not, I conceive, whether there exists a disease such as Dr. Heberden describes, specifically different from small-pox; this is a question which will naturally come under review in tracing the progress of the opinions of medical men respecting varioloid diseases; but merely whether any other contagion besides that of small-pox can have contributed to produce any part of the epidemic of which I have attempted to give a description. It may be that there are several other contagions besides the va-

riolous, that are capable of producing eruptions similar to those of small-pox; but even were this point established, two questions, it appears to me, would still remain to be discussed; the *1st*, Whether any of these contagions besides that of small-pox had actually operated in the production of the present varioloid disease? and the *2d*, What evidence is there for believing that the vesicular eruption described by Mr. Bryce is the disease called chicken-pox by Dr. Heberden? since it wants the only character which rendered the distinction of the chicken-pox from small-pox valuable in the opinion of Dr. Heberden, or important in the eyes of inoculators, that of being communicable by inoculation from one person to another. “But though it (chicken-pox) be so insignificant an illness, that an acquaintance with it is not of much use for its own sake, yet it is of importance, on account of the small-pox, with which it may otherwise be confounded.” Commentaries, p. 446; and p. 450, “From the great similitude between the two distempers, it is probable that instead of the small-pox, some persons have been inoculated from the chicken-pox; and that the distemper which has succeeded has been mistaken for the small-pox by hasty and inexperienced observers.”

Mr. Bryce’s description of the vesicular varioloid eruption is, you will perceive, more minute and detailed than that which I have given; but as the result of my observation of this form of the dis-

ease differs in several respects from his, I shall state to you briefly some of the more obvious particulars in which this difference consists.

I have very seldom, if ever, seen the vesicular disease occur, either in the vaccinated or in the unvaccinated, without some degree of previous fever. I have seen the pustular eruption of small-pox repeatedly break out with but a very slight degree of febrile affection; and the vesicular eruption of the purest kind and shortest duration frequently, though not generally, preceded by smart attacks of fever, or accompanied by fever in its progress.

Though the vesicular eruption may have been the first symptom observed, it certainly does not follow that it is the first which occurs in the order of nature, or the first that might have been observed by the parents or medical attendants. The red points denominated papulæ have always appeared to me to precede the occurrence of the vesicles, and the vesicles, in general, to bear some proportion to the size of these papulæ, and to the degree of their inflammation.

The thinness and transparency of the cuticle have usually been most observable on the first appearance of the eruption. In some instances the vesicles have burst without this transparency being destroyed; but in the greater number of instances they have become opaque and thickened, and have contained a milky-coloured or purulent fluid. In several instances the eruption, which was purely

vesicular at first, has become distinctly pustular in its progress, and the slight inflammatory areola with which the vesicles were surrounded have been succeeded by inflamed, somewhat elevated and hardened bases.

The degree of hardness which is felt in the base of vesicles, after letting out their contents, has appeared to me to be extremely different in different individuals, as well as in the different vesicles of the same individual, in the different periods of their progress. This hardness has seemed to me to depend upon the degree of adhesive inflammation existing at the base of the vesicles, and to vary with that state.

Successive crops of limpid vesicles, acquiring a milky colour, have been extremely common occurrences in undoubted cases of modified small-pox; not unfrequently in secondary small-pox; and even sometimes, though less frequently, in cases admitted to be those of natural small-pox. In the progress of the eruption in these cases which have been regarded as pure chicken-pox, it has not always happened that the vesicles which came out first have become first milky, pustular, or scabbed. On the contrary, the subsequent eruptions have sometimes decayed first, leaving the original eruption to go through its natural course. The successive appearance of the eruption rendering it often difficult to determine the time which particular pustules take to mature, I have, in my descrip-

tion, always reckoned the period of maturation from the first appearance of the eruption till the decay of the last pustules, whether these were of the first or second crops. The successive eruptions in the vaccinated, in particular, have appeared to me to form not unfrequently co-existing papulæ, vesicles, pustules, and scabs in the same individual. Some of the papulæ have decayed without becoming either vesicles or pustules; some have become vesicles, and of these some have had hard and others soft bases; and other papulæ, again, have become pustules without being previously vesicular. I have repeatedly seen the eruption vesicular on one part of the body, and pustular on another: pustular, for example, on the face, and vesicular on the body; or vesicular on the body, and pustular on the extremities.

The falling down of the vesicles, which Mr. Bryce mentions as occurring on the evacuation of their contents, is an event which appears to be inevitable in every case in which the lymph is watery, and collected immediately under the thin cuticle. It is not an event, however, which is peculiar to the mild vesicular eruption, but one that occurs also in the malignant vesicular or water-pox. By the spontaneous evacuation of the contents of the vesicle in the malignant variety, I have often seen the cuticle lying flat upon the cutis on some parts of the body, and wholly removed from it in others, by the fourth or fifth day, giving to the skin

the peculiar appearance which Dr. Huxham has not unaptly compared to that of a "flayed rabbit." The vesicles in malignant water-pox break often also at an early period, as on the second or third day ; and in this variety of the disease, the contents of the vesicles seldom if ever acquire a milky colour. In this respect, therefore, the malignant water-pox is to be regarded as a disease even more strictly vesicular than the mildest variety of the epidemic, conceived to be the chicken-pox.

The comparison of the appearance of the vesicles to those made by scalding water is perhaps as accurate as is possible ; yet I have seen few blisters from burns in which the cuticle appeared to be so thin, or the contents so limpid, as in the mild vesicular and vesiculo-pustular varieties of small-pox. In the progress of the eruption, it has been the larger vesicles chiefly which have appeared to me to be broader at the summit than at the base ; but this appearance has never presented itself to me existing at the same time in all, or even in the greater part, of the vesicles forming the eruption ; for in the interstices of these flattened vesicles I have often seen acuminate vesicles, and vesicles filled partly with serum, and partly with pus resting upon raised and inflamed bases.

When the vesicles have become purulent, they have generally remained some time in that state, have afterwards scabbed, and the scabs in falling off have sometimes, but not always, left blains

tubercular elevations, or even pits in the cutis. I have often been surprised to see vesicles, which had remained transparent for two, three, or more days, become at last purulent, and from this state pass into that of horny scabs, that have come away after intervals of time very different in different persons, and even in the different scabs of the same person. In the vesiculo-pustular variety, some of the pustules have often continued purulent from the fourth to the seventh, eighth, ninth, and tenth, or even to a later day. I have not been able to tell, in the commencement of a vesicular eruption, whether or no it would become pustular, or at what period the scabs were likely to separate. Even the vesicles which have burst, and discharged a part of their contents, have frequently been observed to become again distended, and pass into the state of pustules.

In the numerous instances in which I have seen vesicles become pustules, this has appeared to me to have been effected by an inflammatory attack, sometimes accompanied by a distinct febrile accession, which has not only destroyed the transparency of the cuticle, but has appeared to add to its thickness and tenacity. In these cases, the cutaneous texture under, and immediately surrounding the pustules, has appeared to be raised by an interstitial deposition of coagulable lymph; and this lymph has appeared to form the tubercular elevations, which have been so often visible on the

falling off of the scabs, in those in whom the change from the vesicular to the pustular state has taken place. These elevations, which are so frequently to be seen on the falling off of the scabs, in those who have had distinct natural small-pox, are the only appearances in varioloid eruptions to which I have ever given the name of tubercles.

My observation does not allow me to regard the symptoms mentioned by Mr. Bryce as affording sufficiently precise diagnostic marks between chicken-pox and modified small-pox. With regard to the first character, the slight degree of eruptive fever, I must repeat, that I have sometimes seen natural small-pox attack with only a very slight degree of eruptive fever, and the vesicular eruption, supposed to be chicken-pox, often ushered in by a severe febrile paroxysm of from one to three days continuance. In various instances of natural as well as of modified small-pox, the fever has not been observed till after the eruption had made its appearance, and in some of these cases the fever has neither been slight nor of short duration. In most of the cases of modified small-pox, whether of a vesicular or pustular form, the fever usually abates remarkably, if it does not altogether cease, immediately on the appearance of the eruption. With regard to the second character, viz. the rapidity with which the fluid is secreted into the vesicles, and the perfect transparency and thinness of the vesicles during the first or second day of

their appearance, I can only say, that in a very great number of undoubted cases of modified small-pox, the formation of the vesicles has been as rapid, and their covering as transparent, as in any cases which I have known, considered to be cases of chicken-pox. The strictly vesicular eruption in the unvaccinated has appeared to me to occur chiefly if not solely in infants ; but in the vaccinated, in whom it has been so frequent an occurrence, it has appeared after as well as during the period of infancy.

The very great number of instances in which I have now seen the vesicular eruption accompany, precede, or follow the pustular form of small-pox, in different individuals in the same places, and several old as well as recent examples that have come to my knowledge of the injurious and even fatal effects which have arisen from the practice of allowing persons affected with vesicular eruptions, supposed to be the chicken-pox, to have intercourse with those who were unprotected from small-pox, have produced upon my mind an impression, which many hundred experiments, affording only negative results, are not likely soon to efface, and have, perhaps, contributed to take from me the inclination I might otherwise have had to prosecute, as Mr. Bryce has very properly done, this subject experimentally. In reflecting, however, on the subject in this point of view, it has appeared to me, that, in order to obtain accurate or useful results,

it would be necessary to institute a far greater number of experiments, and in circumstances much more varied, than my opportunities, extensive as they have been, would permit; and that even if the results of these experiments coincided in every respect with those which Mr. Bryce has obtained, in regard to the two points to which his attention has been directed, I should still have felt hesitation in considering Mr. Bryce's conclusions as perfectly warranted. I am not satisfied that the present state of our knowledge respecting either the modifications of which the human constitution seems to be susceptible in relation to the infection of small-pox, or the changes which external circumstances are capable of producing upon that contagion itself, without depriving it of all its infectious qualities, have been sufficiently ascertained in order to enable us, from a few negative results, to determine, that the vesicular form of the present varioloid epidemic cannot have been produced by the operation of the same cause that is acknowledged to have produced all the other forms of the disease.

It has, I believe, been satisfactorily ascertained, 1st, That in all the circumstances in which the trials have been made, and their number has been almost infinite, the small-pox are rendered greatly milder by inoculation than when they are caught in the natural way; but whether the matter of the eruption, which is produced by inoculation, be always secreted in such a state as to be capable of

producing the same disease by inoculation, is a point about which it is not unreasonable to entertain doubts.

2dly, It has been ascertained, also, by numberless trials and observations, that the having passed through the cow-pock inoculation renders the body very nearly, if not altogether, unsusceptible of small-pox by inoculation, though it seems to leave it still susceptible of the infection of that disease, in particular seasons at least, through the medium of atmospheric contagion.

3dly, It has been distinctly ascertained, that cow-pock inoculation, though it does not render the constitution generally unsusceptible of small-pox infection by atmospheric communication, yet it not only deprives small-pox, when subsequently caught, of their usual malignity and danger, but gives to them, in most instances, a form so different from that of ordinary small-pox, as to have induced many practitioners of great experience to believe that they could not be small-pox, but a disease of a peculiar kind. Now, whether the matter which is secreted in small-pox, thus modified by vaccination, be always secreted in a state capable of communicating small-pox, by inoculation, to the unprotected, is another point, concerning which I am not aware that any accurate or extensive series of observations has hitherto been made or collected. My knowledge of these and other analogous facts, and of the doubts and en-

quiries to which they give rise, incline me to believe that much is wanting, in order that the results of the experiments instituted by Mr. Bryce with the matter of varioloid eruptions taken from vaccinated children should in any way tend to create a distrust in the accuracy of the conclusion to which I have been led, and which, in the progress of the present varioloid epidemic, I have had so many opportunities of verifying by observation: That the mild vesicular form of the epidemic, as well as the malignant vesicular, is capable of producing, and of being produced, by all the other forms of the disease.

Having made these preliminary remarks, I shall proceed to state to you the reasons which induce me to believe that the result, in particular, of the experiment made by Mr. Bryce, with regard to the regular progress of the cow-pock pustule, in those who have passed through the vesicular disease, does not affect in any degree the accuracy of my observations of the present epidemic, nor the justness of the conclusion to which I have been led by the analysis of these observations. The trials made to ascertain whether the cow-pock pustule goes through its regular progress in those who have had the vesicular eruption, being only two in number, are to be regarded, I conceive, as suggestions for future investigation, rather than as grounds for a general or positive conclusion with regard to the specific and independent nature of this disease.

That much still remains to be done in this field of inquiry, must appear evident, when we reflect that it is far from having been satisfactorily ascertained what proportion, even of those who have gone through the small-pox, either in the natural or artificial way, are by this rendered unsusceptible of regular cow-pock inoculation. I have myself known several persons, and there are many more upon record, who have had regular cow-pock pustules, after having previously passed through small-pox ; and I know that in the present, as well as during former varioloid epidemics, there have been many who, along with small-pox, have had regular cow-pock pustules, which, while they seemed to modify the small-pox, went through their progress unaffected by that disease. Besides, we have the authority of Dr. Jenner himself for believing, that though the cow-pock renders the constitution unsusceptible of variolous infection by inoculation, it leaves it, sometimes at least, unchanged with respect to its own ; and that “ although the susceptibility of the virus of the cow-pock is for the most part lost in those who have had the small-pox, yet in some constitutions it is only partially destroyed, and in others does not appear to be in the least diminished.”* Now, unless we are to suppose

* While revising the present sheet for the press, I have received a letter from Mr. Milne, Surgeon, Old Meldrum, Aberdeenshire, containing an account of the case of a young woman, 25 years of age, at present affected with the vario-

that the small-pox renders the constitution unsusceptible of cow-pock, in the same manner, and to the same extent, as cow-pock renders the constitution unsusceptible of small-pox, a fact which, so far as I know, has never been affirmed, I cannot perceive by what principle of reasoning it can at present be inferred, from the circumstance of two persons remaining susceptible of regular cow-pock inoculation, after having passed through the vesicular disease, that this disease differs specifically in its origin from that of small-pox. When it shall have been established by general experience, that the having had the small-pox always prevents the cow-pock from going through its regular course, and that the vesicular eruption uniformly admits of this, then, and not till then, I conceive, can the experiment made by Mr. Bryce be admitted as afford-

loid disease in the form of severe natural small-pox. This woman was inoculated when 3 years old with small-pox, and had an eruption of upwards of two dozen of distinct variolous pustules. At 9 years of age, she, with two younger and unprotected children of the family, passed through an eruptive disease which was considered as chicken-pox; and 9 years again after this, when acting as a dry nurse, out of mere curiosity she requested to be vaccinated along with some of the children of whom she had the charge. The pustule produced by this inoculation resembled in every particular those of the pustules in the children, and on account of the genuineness of its appearance matter was taken from it, with which several of the children in the neighbourhood were vaccinated.

ing even a presumptive argument in favour of the opinion which supposes a difference between the contagions of chicken-pox and small-pox. But even then, a subordinate, though important point would still remain to be ascertained, viz. Whether the contagion of small-pox, when it occasions only a vesicular eruption, which it is allowed it sometimes does, gives the constitution the same security against a second infection of the disease by inoculation, as the having passed through small-pox in its usual pustular form? The principal point to be ascertained at present, I must repeat, is not what effect the vesicular varioloid eruption produces upon the constitution, in relation to the regular progress of cow-pock, but whether it leaves the constitution susceptible of small-pox by inoculation, as well as by atmospheric variolous contagion? This, it appears to me, is the experiment which ought to have been made, and the only one from the result of which it is possible to infer, in the present state of our knowledge, that a difference exists, in their effects upon the constitution, between the mild vesicular disease and ordinary small-pox.

That the varioloid disease, in its vesicular form, is not very readily communicable by inoculation, seems to be a fact established by a number of trials made at different times by various individuals; but that the disease is altogether incommunicable in this way, would, I conceive, require many more trials to establish than have hitherto been made.

Besides, it must be remembered, that inoculation with the matter of chicken-pox has been so often stated to have taken place, that a diagnostic mark derived from its occasional failures, notwithstanding the stress which has at various times been laid upon it, can be only regarded as of a doubtful nature. When it shall have been ascertained, by a sufficiently numerous and accurate series of trials, that the vesicular disease is utterly incapable of being propagated from one person to another by inoculation, it will then remain to be considered, whether it be more probable that this is owing to a change which has been effected upon the variolous matter by the mode of its secretion, by vaccination, or by previous small-pox ; or to the vesicular form of the epidemic being produced by a contagion of a nature different from that of small-pox. In the present state of our knowledge respecting varioloid diseases, I cannot admit the latter supposition ;

1st, Because I have not seen any evidence sufficient to induce me to believe, that the present epidemic is owing to the operation of more than one contagion.

2d, Because I have seen the mild and strictly vesicular eruption occur, in almost every instance, in situations where I have had reason to believe it to be produced by the contagion sometimes of natural and sometimes of modified small-pox.

3d, Because I am led to believe, that cases of

a disease similar to the vesicular eruption, which has appeared in the present epidemic not only in Edinburgh, but wherever it has hitherto occurred, were well known to former observers of epidemical small-pox.

4th, Because although it must be granted, that, in the present epidemic, a strictly vesicular or lymphatic form of the eruption has in a few instances occurred in the unvaccinated, yet it has been in this class comparatively a rare occurrence, while it has constituted a very large proportion of the disease in the vaccinated.

5th, Because in several of the cases in which the vesicular eruption has occurred, so far from being mild and without fever, it has been as severe in its local and constitutional symptoms, and of as long continuance, as in any of the cases which I have seen of modified small-pox.

6th, Because I know that experiments similar to those of Mr. Bryce have been made by different practitioners in other places with the matter of varioloid eruptions, conceived to be chicken-pox, occurring after vaccination, and after previous infection with small-pox ; and though in general with the same negative results, yet sometimes with the effect of producing constitutional eruptions.

7th, Because I am unwilling to admit, without some more positive proofs than any which have hitherto been adduced, the existence of a new and specific varioloid disease, in which I have not been

able to perceive a single external character different from those of small-pox, modified by vaccination. I say, of a new and specific disease; for it is evident, that if the matter of the eruption, observed by Mr. Bryce, be not communicable by inoculation, it must be that of a disease specifically different from the chicken-pox, described by Drs. Dimsdale, Heberden, Willan, and other practical authors.

8th, Because, though I am perfectly satisfied of the accuracy as well as interesting nature of Mr. Bryce's statement with regard to the failures experienced in communicating the vesicular disease by inoculation, I am inclined to believe it more probable, that nature should occasionally secrete matter in varioloid diseases in a state incapable of producing corresponding eruptions by inoculation, than that the varieties of these diseases should depend on the operation of several specific contagions. And,

9th, Because it appears to me, that there is much reason to believe, from observation as well as from experiment, that the infectious qualities of the contagion of small-pox are capable of being influenced by a variety of circumstances, such as temperature, season of the year, vaccination, previous infection from small-pox, &c.; but these are some of the many points respecting varioloid diseases, the more full investigation of which must be left to future opportunities.

In the mean time, I may be permitted to remark, that the establishment of the operation of a specific contagion, different from that of small-pox, in the production of the cases referred to by Mr. Bryce, will not invalidate in any degree the soundness of the hypothesis, relating to the identity of chicken-pox and modified small-pox, which I have suggested, nor tend to confirm any observations, besides those of Mr. Bryce, that are to be found in the records of medicine previous to the introduction of vaccination. Indeed, so far from being inconsistent with my hypothesis, the establishing of the impossibility of communicating by inoculation the vesicular eruption described by Mr. Bryce, would, according to my judgment, afford an additional presumptive proof of the justness of that hypothesis; for the chicken-pox of all former authors was a disease not only communicable by inoculation, but one which, according to the observations recorded, was often communicated in that way, and, in consequence of this, mistaken for small-pox. It is the identity of this communicable disease with modified and secondary small-pox which I have suggested, and not of a disease which has been suspected to exist in this country only since the commencement of the present varioloid epidemic.

I have not been able to ascertain exactly the period at which spurious small-pox were first supposed capable of being communicated by inoculation. There can be little doubt, however, that this

opinion had been adopted soon after the introduction of the practice of inoculation for the small-pox; since we find it very generally recommended in the directions given with regard to this practice, that the operator should be careful to make choice of a variolous matter of a right sort; and since we find, also, that when small-pox attacked those who had been previously inoculated, medical practitioners usually alleged, that this must have happened either from some defect in the manner of performing the operation, or from the matter employed not having been that of genuine small-pox.

Baron Dimsdale, in an essay to which I shall afterwards have occasion more particularly to refer, states it as his belief, that several of the eruptions, which resemble most the small-pox, such as chicken-pox and swine-pox, are capable of being communicated by inoculation; and, in proof of this, adduces, from his own observation, as well as from the testimony of others, numerous instances of these diseases having been actually propagated for the true small-pox, through the mistakes of ignorant and inexperienced inoculators. It has been already shown, that Dr. Heberden was of the same opinion; and, indeed, this appears to have continued to be the opinion prevalent among medical men till about the time of the introduction of the cow-pock inoculation.

The first case I have been able to find of a varioloid eruption occurring after small-pox, in which

it was attempted to show that the disease could not be genuine small-pox, because the matter of the eruption failed to produce that disease by inoculation, is recorded by M. Darcet, in the 49th volume of *Journal de Medecine*, for the year 1798. This case is curious, as affording, I conceive, a well-marked example of secondary small-pox, which seems to have borne a striking resemblance, in its symptoms and progress, to the cases of this kind that occurred in Edinburgh Castle in July 1818. It will be seen from the history of this case, that the matter which was taken from the pustules on the eighth and ninth days of the eruption, failed in producing by inoculation any effect in two children, on whom the trial was made with every care requisite to ensure success—though these children afterwards readily received small-pox by inoculation.*

The second case of a varioloid eruption succeeding to inoculated small-pox, in which the matter taken from its pustules failed in communicating a similar disease by inoculation, is related by M. Freteaux, in the 2d vol. of the *Journal de Medecine* for the year 1801. The circumstances most remarkable in this case were the continuance of the fever during the progress of the eruption, and the purulent state of some of the pustules, even so late as the tenth day after their appearance. From

* See Appendix, No. V.

the irregular progress of the disease, and from his having failed to communicate it by inoculation to two children upon whom he tried the experiment, M. Freteaux was led to conclude, that the disease in this case could not be considered as genuine small-pox : and he was greatly strengthened in this opinion, by observing, that the younger brother of his patient became infected from him with an eruption of undoubted chicken-pox, which faded by the fourth day.*

It appears from Dr. Willan's work on vaccine inoculation, that between the times of the two trials I have mentioned as having been made in France, experiments appearing to afford a very different result were made in England. In the first of these experiments, two of the children of a celebrated surgeon were, in 1798, inoculated with matter taken from their brother, who was affected with the chicken-pox. In one of these children, the punctures of the inoculation inflamed, and became, by the seventh day, equal in size to that of a variolous pustule. In the other child, the redness surrounding the puncture gradually disappeared, leaving no mark whatever behind ; yet in each of these children there appeared, on the thirteenth day after inoculation, an eruption of vesicles, which went off in three days, leaving the children free from indisposition.

* See Appendix, No. VI.

In the year following, Mr. Wachsel, resident surgeon at the Inoculation Hospital in London, inoculated a child with lymph taken from the vesicles of another child affected with chicken-pox, and on the fifth day he inoculated him with variolous matter. Both these diseases are stated to have appeared in succession—the chicken-pox on the ninth day, and the small-pox on the seventh day, after their insertion, and to have run through the usual course of these eruptions.

In a second experiment, the matter of small-pox was inserted into the arm of a child affected with chicken-pox, on the third day of eruption. On the tenth day the small-pox pustules made their appearance, and ran through the usual course of that disease.

In a third experiment, the matter of chicken-pox was inserted into one arm of a child, and that of small-pox, at the same time, into the other. The inoculation on both arms seemed to have been effective; but instead of vesicles, 300 variolous pustules appeared, which went through the usual course of drying and scabbing.

M. Valentine, in a paper inserted in the 13th vol. of the *Journal de Medecine* for the year 1802, states, that the spurious small-pox, or chicken-pox, had been very common in the department of La Meurthe, as well as in some other departments of France, during the time that the genuine small-pox had prevailed epidemically in these places.

He relates the case of a child affected in 1800 with chicken-pox, whom he inoculated with the matter of small-pox on the fourth day of the chicken-pox eruption, which by this time had formed into crusts. This child, who had already suffered two attacks of fever and eruption, experienced a fresh attack of fever on the fourth day from the inoculation, and there appeared on the fifth day seventeen distinct pustules of genuine small-pox, which, with the pustules in the punctures, went through the usual course. In commenting upon this case, M. Valentine says, that he had never succeeded in any of the trials which he had made to communicate chicken-pox by inoculation; a result which surprised him the more, that the chicken-pox appeared to be a disease that was propagated by contagion from one family to another, and to attack the same person oftener than once.

M. Valentine inoculated a second child during the progress of an eruption of chicken-pox with the matter of small-pox, and produced in this child an eruption of about 100 variolous pustules; but he has omitted to mention the interval between the inoculation and the appearance of the eruption.

In a third child, he inserted by three punctures the matter of chicken-pox into one arm, and, by an equal number of punctures, that of small-pox into the other. The punctures made with the matter of chicken-pox exhibited no sign of infection,

while those of the small-pox inflamed, and were followed by an eruption of above 100 variolous pustules.

This author mentions, that he had likewise failed in communicating chicken-pox to two unprotected children, whom he had inoculated with matter taken from the vesicles of a varicellous eruption, with which a child had been attacked six weeks after it had gone through the process of vaccination. From these details M. Valentine concludes, That chicken-pox are not susceptible of being communicated by inoculation, and therefore that the reports of this having been done unintentionally are without foundation.

In 1802, a case of varioloid eruption occurred in Paris, which attracted a considerable degree of attention, from the opposite uses that were attempted to be made of it by the enemies and by the friends of vaccination. The child in whom the eruption occurred had been regularly vaccinated, about twelve months before she was seized with it. The eruption is stated by the enemies of vaccination to have been distinctly pustular on the ninth day from its first appearance, and to have passed after this into the state of crusts or scabs. The central committee of vaccination, however, in reporting upon this case, state that the disease with which this child was affected, was distinctly proved to be chicken-pox, 1st, By the certificate the father, mother, and brother of the child, which

attests that, from the first day, the vesicles were transparent, containing a limpid matter which gave to each vesicle the appearance of a small bladder filled with clear water. *2dly*, By the testimony of several distinguished physicians who had seen the child, such as Chaussier, Tillet, De Villiers, &c.; and *3dly*, More victoriously still, by the trials which had been made to inoculate with the matter of this eruption two other children, in whom it did not produce the slightest effect.

The simultaneous occurrence of the present varioloid epidemic in so many different places, not only in this country, but also on the Continent of Europe, has very naturally turned the attention of medical men to the investigation of varioloid diseases. Experiments have been already made, and others, I doubt not, are now making, from which it is hoped to prove satisfactorily that many of these eruptions are not those of genuine small-pox, but eruptions of the kind, that were known to former observers as spurious small-pox, under the names of chicken-pox, swine-pox, &c. In proof of this opinion it has been affirmed, that these spurious diseases differ from genuine small-pox, not only in their appearances, in the period of their duration, and in their effects upon the constitution, but that they also differ in this remarkable property, that the one is communicable, and the other incommunicable by inoculation. But the experiments which have hitherto been recorded do

not appear to me to support well the conclusions that have been deduced from them. For in reviewing these, it will be seen that the inoculation with the matter of eruptions, supposed to be chicken-pox, though it has in general failed in producing any constitutional effect, has in other instances given rise to corresponding eruptive diseases.

Dr. Adams, in his first letter to Mr. Bryce,* mentions two experiments which he had made, with a view to ascertain whether the matter of the varioloid eruption, that prevailed at Forfar in 1813, was capable of producing small-pox by inoculation. In his first experiment, "matter taken from the pustules of one of the doubtful cases, was inserted into the arm of a woman who had never had small-pox, or been vaccinated. *Small-pox* was not produced, nor did any fever follow; but, after a slight inflammation, a vesicle made its appearance at the place of insertion, and, in a few days more, two or three pustules were perceived on different parts of the body, resembling those in the case from which the matter was procured. This individual, though she never had the disease herself, yet slept, when a child, with brothers and sisters labouring under small-pox, and it may be presumed was greatly exposed to the contagion from this source, and of course could not be looked upon as a fair subject for such an experiment. Afterwards, matter taken

* See Appendix, No. IV.

from an unequivocal case of small-pox was introduced into the arm of the same woman. A slight degree of local inflammation and elevation was produced, but without the smallest appearance of vesicle, or any febrile symptoms whatever."

The second experiment he relates in the following words: "About a fortnight ago, I inoculated an infant of 5 months with matter from a case of the spurious affection. The arm inflamed, and three most distinct pustules, or vesicles, followed, marking the places of insertion with a distinct circular areola of a red colour, and extending to the distance of half an inch around these. The pustules increased gradually in size, and were first of a bluish colour, and afterwards became more white, and formed a yellow crust, at first bright, but before it dropped off, assuming a more dusky hue. A pit has followed in the place of the crust; but though the child was restless for several nights, it could not be said that there was any manifest degree of general irritation; she took suck as usual, and was as lively as in health. A respectable practitioner from Montrose happening to be here during the progress of the pustule, declared, that the *same appearance* in a case of inoculation with variolous matter would have satisfied him as to its being a real small-pox pustule, although no general eruption had followed. There was no eruption."

From the result of these experiments it is ob-

vious, that, on the supposition of the doubtful eruptions being small-pox modified by vaccination, the matter of these diseases produced small-pox in the first individual, while it failed to produce any apparent constitutional effect or eruption in the second. Again, on the supposition of the eruptive disease in the vaccinated at Forfar being chicken-pox, it is equally obvious, that this disease was communicated by inoculation to a woman whose constitution seems to have been very unsusceptible of small-pox infection, while it produced only a local effect in a child, who seems to have been, in every respect, an unexceptionable subject for the trial.

There appears to have been a remarkable resemblance in the local phenomena produced by the inoculation of the infant mentioned by Dr. Adams, and those which took place in the two children mentioned by Dr. Alison, as having been inoculated by Mr. M'Intosh with pus taken from one of the children in Jamaica Street. In one of the children, however, inoculated by Mr. M'Intosh, besides the local phenomena, a considerable degree of febrile constitutional affection manifested itself on the seventh or eighth day after inoculation. To me, indeed, it seems doubtful whether, if trials sufficiently numerous had been made with this matter, constitutional as well as local effects might not have followed ; nay, I am even doubtful, whether, if matter had been taken from the local pustules produced by inoculation, it might not have

produced constitutional eruptions in other unvaccinated children.

In his second letter, Dr. Adams mentions, that “ of four children inoculated with the matter of this *doubtful* affection, one has afforded all the characters of *small-pox*. Eight or ten days after inoculation, this infant sickened, puked, and for two or three days refused his accustomed nourishment. A scarlot efflorescence then came out all over the surface, which was quickly succeeded by an eruption of papulæ, that became pustular, and remained out during nine or ten days; their size, in general, equalling that of a small garden pea, in number about 100. In two others the symptoms were the same, with the exception of the size and duration of the pustules; these did not exceed six or eight, and remained no longer than four or five days. One, an infant of 5 months, (as mentioned in my former communication,) showed no deviation from her usual state, but on the inoculated arm there arose perfect vesicles, as was the case in them all. These three have since been inoculated with *variolous matter*, and no local effect even has followed.”

By comparing the local and constitutional symptoms which occurred in the woman who was the subject of Dr. Adams’s first experiment, with those which are stated to have occurred in the infant who was the subject of his last, you will not fail to perceive, that the differences in the symptoms

of these two cases, produced by inoculation, were as remarkable as any which I have stated to have occurred in cases arising from the infection of natural small-pox during the progress of the present epidemic. So great, indeed, were these differences, as to induce Dr. Adams to believe, that the eruption in the woman was not that of small-pox.

M. Pougens, physician at Millau, in a pamphlet which he has entitled, *Petite Vérole, chez plus de deux cents Individus vaccinés observée au Millau en 1817*, states, that he had produced in one child distinct, and in another confluent small-pox, by inoculating them with matter taken from eruptions in two other children, supposed, by the secretary of the Committee of Vaccination, and some other practitioners at Millau, to be chicken-pox, but which he believed to be small-pox rendered mild by previous vaccination. Notwithstanding the terrors at first excited by the title of this pamphlet, in perusing it, it is agreeable to find, that not a single individual at Millau, who appeared to have been regularly vaccinated, died by an epidemic, of which M. Pougens states, that more than two hundred unvaccinated children in that place had been the victims.

Dr. Bent, in a short account which he has given of a varioloid epidemic that prevailed in the county of Derby in 1818, in alluding to some trials that had been made to inoculate unvaccinated children

with matter taken from the eruptions of the varioloid disease, mentions, that pocks produced in this way "have generally preserved one character. They have been vesicular, and have become dry about the sixth day, without going on to suppuration." "The appearances," he adds, "presented in a variety of cases, have, however, been sufficiently varied to give rise to the supposition, that the contagions of variola and varicella might both be prevailing; but the experiments which have been made in the way of inoculation prove pretty satisfactorily, that one contagion gives rise to the whole, and that the differences are owing, in all probability, partly to early treatment, but mainly to constitutional peculiarity. Had both diseases been prevalent, one should expect to meet with the occurrence of one after another in the same individual in some instances; but this has never happened in any case within my knowledge."*

One of the latest attempts to establish by inoculation a specific difference between chicken-pox and small-pox, is to be found in the description which has been given by M. Fontaneilles of the conjunct prevalence of these diseases in 1817, at Millau, a town in France, situated about fifty miles north of Montpellier.† This author's attention

* See London Med. and Phys. Journal, vol. xl. p. 461-2.

† See Description de la Varicelle, qui a régné Epidémiquement et Conjointement avec la Variole dans la ville de Millau, (Aveyron) en 1817. Par F. P. Fontaneilles.

seems to have been first attracted to this subject by his observing an eruptive disease break out among the children of an hospital to which he was attached as physician. It appears from his statement, that of 86 children living in this hospital, 22 were affected with this varioloid disease during the course of eight or nine weeks. Of this number 12 had been vaccinated, and 10 were unvaccinated. In 11 of the 22, the disease appeared in the form of natural small-pox, and in 5 of this number proved fatal; in the other 11, of whom some were vaccinated and others not, this disease appeared in the vesicular form of chicken-pox, but in no case of this kind did it prove fatal. With the matter of the vesicular eruption, M. Fontaneilles inoculated first four, and afterwards eight children, three of whom only had not been vaccinated. In none of these children did any symptom of a general infection occur. In the three unvaccinated children, however, the punctures became inflamed, and were covered by a vesicle of an irregular form, which was filled with ichorous matter, and surrounded with a small areola. In two of these children, scabs were formed, which did not fall off till the 15th day of the disease.

With the matter of the small-pox eruption, M. Fontaneilles inoculated eight children, six vaccinated, and two unvaccinated. In none of the vaccinated children did any symptom of infection, either general or local, occur; but the inoculation

took full effect in the two unvaccinated children, one of whom died of the disease.

From the results of this statement, M. Fontaneilles conceives that he is entitled to conclude, that there reigned epidemically in the hospital at Millau, in 1817, two exanthematic fevers, which, by their symptoms, progress, and the experiments instituted, were shown the one to be small-pox, and the other an irregular chicken-pox.

It appears from M. Fontaneilles' account, that this epidemic spread speedily afterwards through the town of Millau, and preserved the same distinct forms which it had exhibited in the hospital.

To ascertain still more correctly the nature of the irregular chicken-pox, he inoculated an unprotected child from a boy of 14 years of age, affected with this disease, who had been vaccinated in his infancy. The inoculated child had a slight attack of fever on the sixth day, and upon the eighth there appeared an eruption of about 50 red pointed papulæ, chiefly confined to the lower extremities. On the day following this eruption became vesicular. Several of the papulæ decayed by the third day, without containing any fluid. M. Fontaneilles punctured eight or ten of the vesicles, which had become of a large size, and were filled with a clear lymph. In drying, the vesicles formed thin shining friable crusts, which almost all fell off by the sixth day. Though the result of this experiment was different from the former, yet it does not ap-

pear to have changed in any degree the opinion which M. Fontaneilles entertained, of an essential difference existing between the two forms of the varioloid eruption. He confesses that it is difficult to explain how the chicken-pox should have been produced with its irregularity by inoculation. "All practitioners," he says, "know that chicken-pox is capable of being communicated by inoculation, and that several distinguished physicians have practised it with success. This took place at Montpellier in 1816." It appears from M. Fontaneilles' account, that of 290 individuals attacked with the disease in the form of small-pox at Millau, not fewer than 55 had died; that almost all who recovered were deeply marked with the disease, and that several had lost their sight. One cannot read this recital without participating in the indignant warmth with which this author expresses himself against the enemies of vaccination. It is a pity this warmth should have been joined with reflections of a personal nature.

More recently still, the Committee of Vaccination at Marseilles have published a report, in order to allay the fears which had been raised in that city and neighbourhood, by the occurrence of a varioloid disease among some of the children who had been vaccinated.* In this report, the committee relate the result of several experiments,

* See *Nouveau Jour. de Med. &c.* for April, 1819.

made with a view to determine the nature of an eruption that had occurred in a girl 13 years of age, who had been vaccinated in her infancy. Two children were inoculated with the matter of this eruption. Inflammation supervened in the punctures, which in their progress exhibited somewhat of the appearance of the cow-pock pustules; but no general eruption followed.

From the punctures in the two inoculated children two other children were inoculated, and this matter produced in them also hard pustules in the places of the punctures, covered at their summit by somewhat elevated vesicles, slightly depressed towards the centre, and surrounded by an inflammatory areola. In these children also, the affection produced by the inoculation was merely local, and is stated by the committee to have belonged neither to the small-pox nor to the cow-pock.

Two vaccinated children were next inoculated. In these also the punctures passed into the state of pustules, but without any general eruption appearing to take place.

The committee acknowledge, however, that in a seventh experiment, a constitutional eruption made its appearance all over the body on the 12th day of the inoculation, exhibiting in its appearance and progress the same characters as the pustules of the punctures. The eruption in this case was preceded and accompanied with a considerable degree of fever.

In an eighth child, the pustule on the arm exhibited the same appearances as in the last case, but was not followed by any constitutional eruption.

The committee state, that Drs. Neil and Feste had furnished them with matter taken from eruptions similar to the eruption the matter of which they had used in their first experiments, and that the inoculations with this matter had afforded also only negative results.

In conclusion, the committee state, that these and other facts which had come to their knowledge, induced them to believe that several vaccinated children in the city, who had been attacked with an eruptive disease, which resembled the small-pox, had in fact been affected only with an anomalous eruption,—an eruption which the older practitioners had always observed in summer during the progress of great variolous epidemics, and which, if superficially observed, might pass with the inexperienced for true small-pox.

The only additional information respecting the inoculation of chicken-pox I have to mention, is contained in a letter which I received some weeks ago from an intelligent practitioner at Geneva. “We have inoculated here,” says he, “persons with the virus of chicken-pox, and chicken-pox have been produced by it, in the same manner as small-pox are produced by the matter of inoculation with small-pox. Each of these diseases,” he

adds, "has a progress peculiar to itself, most evident in insulated cases, but less so when the two epidemics prevail, as they sometimes do, together." In another part of the same letter, this physician remarks, that it is exceedingly difficult, perhaps impossible, to distinguish the three following cases from one another: 1st, That of varicella, under the influence of an epidemic variolous atmosphere; 2d, That of benign small-pox, in which the eruption appears in successive crops; and, 3d, That of small-pox rendered mild by previous vaccination.

Such being, so far as I have been able to learn, the present state of our knowledge with regard to the effects produced by inoculation with the matter of eruptions supposed to be chicken-pox, you will not be surprised that the result of the experiments which have of late been made by Mr. Bryce, should have produced so little impression upon my mind, and should have left me as much convinced as ever of the identity of chicken-pox and of modified small-pox. His experiments are curious, however, and deserve to be repeated; but whether similar trials shall in future continue to be followed uniformly with negative results, or, as has happened in other places, frequently with negative, but sometimes with positive results, it would be folly in me to pretend to conjecture. Every thing which I learn with regard to the effects produced on the human constitution by the

agency of cow-pock inoculation, tends to convince me, that not only the form and character of subsequent small-pox are modified by it, but also that the qualities of the variolous contagion itself are often changed by it, in such a manner as to render this contagion incapable of being readily propagated by inoculation. This is a subject still in its infancy, and many experiments will require to be made, and many points to be ascertained, before we shall be entitled to conclude that the vesicular eruptions occurring, it would appear every where, during the progress of variolous epidemics, are derived from any other source than the contagion of small-pox, and still more before we are entitled to place the result of a few negative experiments in opposition to observations accurately made, and frequently repeated.

That an eruptive disease, resembling in its symptoms the descriptions which have usually been given of chicken-pox, has formed a large portion of the present varioloid epidemic among the vaccinated in Edinburgh and other parts of Scotland, is a fact which does not admit of doubt; and that this supposed chicken-pox has, in every situation, accompanied small-pox wherever they have made their appearance, is equally indubitable. Mr. Bryce states, that he has seen this disease in 2 unvaccinated, and in 20 vaccinated persons, during the course of the last ten months. I had seen this form of the disease in eighteen unvaccinated

persons, before I drew up my description of the epidemic, and I have seen it in three others since that time. I have kept no account of the number of the vaccinated affected with the disease in the vesicular, or in the vesiculo pustular forms, because these seemed to me to be the most common forms in which modified small-pox occur. But taking the ratio given by Mr. Bryce as the ground of my calculation, 2 being to 20 as 21 is to 210, I must have seen this last number of cases of the varioloid disease in the vesicular form in the vaccinated, and I know that a great number of these cases have been declared to be chicken-pox by those who have seen them.

From this calculation also, it is obvious, that of the 310 cases which I have conceived to be, and have described as cases of modified small-pox, not more than 100 cases can have been truly such. We have had then, it would seem, two contagious epidemics in Edinburgh, one varicellous, the other variolous, prevailing together at the same time, and always in the same places, each preferring a different class of persons as the object of its attack, yet each seizing upon, and occasionally destroying, whether from necessity or choice does not appear, those who ought to have been the victims of its rival contagion. If, indeed, there have been two varioloid epidemics in Edinburgh, to me it seems strange that some pains should not have been taken by those who are convinced of this, to ascertain the

quarters from which they have come, whether they have always gone together, and which of them during the last ten or twenty months has attacked the greater number of persons. I have found many ready to instruct me in the diagnostic marks of chicken-pox and of small-pox ; but for information with regard to any of these three particulars, I have looked every where in vain.

Those who contend for the distinct and independent existence of chicken-pox and small-pox, can best explain why, during the course of the present epidemic, not only in this country but upon the continent of Europe, they should not in any situation have been observed to occur separately, and why the varioloid disease should have so seldom attacked the unvaccinated in the form of chicken-pox, and at the same time should in that form have attacked so large a proportion of those who had gone through the process of vaccination. But that in the present varioloid epidemic, the chicken-pox should so constantly have accompanied small-pox, will perhaps appear the less surprising to those who reflect, that this is an event which has not been peculiar to the present epidemic, but one which has been uniformly observed to occur in every situation in which small-pox have appeared, since the introduction of the practice of vaccination. Indeed, in many of the places in which varioloid diseases have occurred within this period, chicken-pox have been supposed to

constitute the greater part, if not the whole, of these epidemic eruptive diseases.

The oftener chicken-pox and small-pox are observed to co-exist, the greater, surely, must the presumption be that they proceed from the same source. If, then, since the introduction of the practice of vaccination, chicken-pox have in every instance been observed to occur where small-pox have made their appearance, it seems but reasonable to suppose that there must be some sort of connexion between these two diseases, something in the one eruption which has a tendency to produce the other. The occurrence and the repeated returns of small-pox in a number of different places within the period I have mentioned, and their having been uniformly accompanied by the existence of chicken-pox, would seem to show that the simultaneous appearance of these diseases depends upon a necessary, not an accidental relation; and if so, it may be presumed that they must have appeared together before the introduction of vaccination, in the same manner as they have been observed to occur together in every place since that time.

It will afterwards be seen, from the histories of the varioloid diseases that have occurred in the places, districts, or countries in which this salutary practice has been adopted, that the number of those suspected to have been affected with chicken-pox, has borne a wonderfully accurate proportion to the number of the vaccinated—that where the

vaccinated have been few, there small-pox have been numerous—that where the population has been very generally, or all vaccinated, all has been chicken-pox ; or that the small-pox have occurred only in a few unvaccinated individuals. In countries again like this, where vaccination is a matter of choice, and where of course it has been but too much, and in many districts, shamefully neglected, there it will be found that the varioloid epidemics which have occurred, have been of a mixed and of a doubtful nature—that in some of these situations, the epidemic has been declared to be the chicken-pox, in others the small-pox ; one or other, or both, according to the preconceived opinions or supposed interests of those who have been the historians of these diseases. But amidst all this diversity of opinion, it cannot have escaped your notice, how natural and how common it has been for practitioners to suppose the varioloid eruptions occurring in those whom they themselves had vaccinated, to be chicken-pox, not small-pox ; nor can they, I conceive, with justice, be blamed for indulging this very agreeable idea, so long as those who have the superintendence of Public Vaccine Institutions shall continue to claim for their patients exemption from small-pox, and in this way assume the privilege of considering themselves as the best, if not the only real vaccinators.

To these remarks I shall only farther add, that during the whole of my attention to the phenomena

of the present epidemic, there appears to me to have been precisely the same reasons for believing that the vesicular form of the varioloid disease in the vaccinated has arisen from the contagion of small-pox, as there have been for believing that the pustular form of the disease has owed its origin to that contagion; for in this class, as in the few instances in which it has occurred in the unvaccinated, the mild vesicular form of the varioloid disease has co-existed with, has preceded, or has followed, the pustular form, at the precise periods these eruptions ought to have appeared, supposing them to have been reciprocally the cause and effect of each other. Indeed, I cannot conceive it possible for any person to have seen the vesicular eruptions which have occurred in so small a proportion of the unvaccinated, and in so great a proportion of the vaccinated, in the circumstances in which I have seen them occur during the progress of the present epidemic, and not to have been irresistibly led to the conclusion, that the different varieties of the varioloid disease, how widely different soever they may have been in their local and constitutional symptoms, have all proceeded from the operation of one and the same contagion—the contagion of small-pox.

I should have remained contented with offering these remarks on the opinion expressed by Mr. Bryce, and would, without farther explanation, have left it to you to judge, from the data before

you, of the soundness of the opposite conclusions to which he and I have been led by the observation of the present epidemic, had it not been for the particular reference which is made, in the letter of Dr. Alison, to some of the individual cases of the disease, that have been seen by him, by Mr. Bryce, and myself, during their progress. The light in which Mr. Bryce and Dr. Alison appear to have viewed these cases differs so materially from that in which I had viewed them, that I must claim your indulgent attention while I endeavour to state to you, at greater length than I had conceived would be necessary, the different circumstances in which, during the progress of the present epidemic, I have seen the varioloid disease appear in a vesicular form. In order to preserve some connexion among my observations in giving this statement, I shall be obliged occasionally to repeat circumstances which have been formerly mentioned, and with the knowledge of which you must be supposed to be already familiarly acquainted. This review, however, appears to be the more necessary, that the general tenor of Dr. Alison's letter seems to me to be calculated, though I am well aware not intended, to throw doubts upon the whole series of my observations, and particularly upon my description of the diversified appearances of the varioloid disease, in those who had gone through the process of vaccination.

Dr. Alison has not mentioned, you will perceive,

whether from his opportunities of observation, which have been very extensive, he has had any reason to believe that the contagion of chicken-pox has co-operated with that of small-pox, in the production of any part of the present epidemic, nor whether, previous to the occurrence of the cases to which he refers, he has had reason to suspect that any other contagion had operated besides that of small-pox. I need not now inform you, that the vesicular and pustular forms of the varioloid epidemic have occurred together since the first appearance of the disease in this place; that they have never ceased to accompany one another in its progress; and that, at the moment I am now writing, they are to be seen in Edinburgh, as distinct as ever, in the two classes of persons which they respectively attack, the vaccinated and the unvaccinated. Neither can it be necessary for me, I conceive, to repeat any part of the statement or reasoning, by which I have endeavoured to show, that the few instances in which the vesicular form of the eruption has occurred in the unvaccinated, could not be referred to the operation of a contagion different from that which is allowed to have produced all the other varieties of the disease, without admitting suppositions which are not only inconsistent with matters of fact, but which, if adopted, would involve us in endless difficulties and contradictions. For Dr. Alison this must be the less necessary, since he has admitted, that a

strictly vesicular disease bearing all the characters usually attributed to chicken-pox, may arise from the contagion of small-pox, as may be seen from the following paragraphs of the report of the diseases treated at the New Town Dispensary :

“ The symptoms in these cases, as well as in the cases described in our Report for July, differed in several respects, as was then stated, (vol. xiv. p. 393-4,) from Heberden’s description of chicken-pox. But it appeared in some cases which occurred in the practice of the Dispensary last summer and autumn, and to which Dr. Thomson referred in his paper on the Varioloid Disease, &c. vol. xiv. p. 518, that symptoms answering to the description of chicken-pox by Heberden and Willan, proceeded from the contagion of small-pox in some persons, protected by vaccination ; and we are equally satisfied from our own observations, that in a few constitutions, *altogether unprotected*, the contagion of small-pox has produced symptoms equally answering to these descriptions of chicken-pox.

“ It is in this last way, as we are now convinced, that we ought to explain the circumstances of a case which occurred very early in the practice of the Dispensary, and is mentioned in vol. xii. p. 247. At that time we saw several cases of mild eruptive disease in vaccinated children, and several of well marked small-pox, in children never vaccinated, occurring together. We hesitated whether to consider the former disease as modified small-pox, or as chicken-pox accidentally prevalent in the same neighbourhood, until the case now alluded to occurred, which seemed to be decidedly chicken-pox, and the subject of which had never been vaccinated. This made us incline to the supposition, that two different contagions were there operating.

“ Five cases of the same kind have occurred this winter, in children from six months to three years old, who we were sure had been exposed to the contagion of fatal small-pox; who had not been exposed, as far as we could learn, to the contagion of any other eruptive complaint, and had never had cow-pox. Two of them were indeed vaccinated by us, at the time of their exposure to the contagion, but the vaccination failed. The eruption in them all was formed into thin flat scabs, and the inflammation about these was nearly gone about the fifth day. The eruptive fever was trifling. This agrees with what is related by Dr. Thomson, as having been observed by him and Mr. Gibson, in regard to several of the patients at New Lanark, during the late epidemic there, who had never had either small-pox or cow-pox, and in whom the disease, seemingly proceeding from the contagion of small-pox, exhibited the character of chicken-pox, (vol. xiv. p. 657.) and one similar case is mentioned by Mr. Hennen (vol. xiv. p. 414.) as having occurred in an infant three weeks old.

“ These observations should be taken in connexion with the opinion of some of the older authors, noticed by Van Swieten, that the contagion of small-pox, when weakened in its virulence, particularly during the decline of epidemics, produces the chicken-pox.

“ Now, if the appearances of chicken-pox may be produced, in certain circumstances, by the contagion of small-pox, it does not seem *a priori* probable, though it is no doubt possible, that the same appearances are also produced by another specific contagion.

“ In most of the cases of small-pox that we have lately seen, as well as in those described by Dr. Thomson, (vol. xiv. p. 519,) the eruption has decidedly come out in successive crops; and the pustules that came out last, though

they never became large, have taken their own time to maturate, so that, on the 12th and 13th days of the disease, when most of the pustules on the face were blackened and scabbing off, a few have appeared yellow and turgid.

“ We had an opportunity of learning lately the particulars of a case, where an eruption appeared, after slight fever, in a child never vaccinated, who had been exposed to infection from one of the Dispensary patients affected with modified small-pox. This eruption, from the report of the mother, was quickly “blown up into blisters,” and was formed into scabs within six days. During this child’s convalescence, several unvaccinated children in the same land, and exposed to infection from her, took small-pox, and two vaccinated ones took modified small-pox, and became patients of the Dispensary. Eight weeks after her first attack, this girl was attacked a second time with confluent small-pox, and died.”—*Medical and Surgical Journal*, vol. xv.

I have a perfect recollection of the circumstances of the cases referred to by Dr. Alison in the first paragraph of the preceding extract. I was carried to see one of them by my young friend Mr. M‘Intosh, who has assisted me in observing the varioloid disease, and in drawing up for me with much accuracy the histories of some of the cases which have been regarded as of a doubtful nature. In showing me this case, he informed me that it had been seen by Dr. Alison, and had been regarded by him as a case of chicken-pox. I knew that a child had died of confluent small-pox a few days before this, in a house on the opposite side of the street, and that there was at this very time

another child recovering from a severe case of coherent small-pox, in the floor above that where the child having the vesicular eruption lived. The grandmother of this child, a determined enemy to vaccination, seemed much pleased to think that her little charge had got the small-pox in so mild a manner, while around her, even the children who had been vaccinated were seized with this disease, many of them in a much severer form. It was with some difficulty that I could get this woman to confess that she had not only gone herself, but that she had repeatedly carried her infant charge into the room where the child I have mentioned was recovering from the small-pox, and by way of excuse, she alleged that she had never remained there longer than a quarter of an hour at a time. I could relate to you several similar anecdotes of the manner in which I have been able to trace cases said to be chicken-pox, in unvaccinated as well as vaccinated persons, to a communication with those who had either died of or were passing through natural small-pox, but I hope this example may suffice.

Dr. Alison appears to me to have enumerated eight characters, in which he conceives the eruption in the cases to which he refers to differ from modified small-pox. 1st, The slight degree of eruptive fever. 2d, The sudden formation of the vesicles. 3d, The greater dimension of the vesicles at the summit than at the base. 4th, The want in

these vesicles of central depressions. 5th, The want of hardness in the base of the vesicles. 6th, The falling down of the vesicles on the letting out of their contents. 7th, The uniformity in the appearances of the eruption in the vaccinated and in the unvaccinated; and, 8th, The difference which exists during the first three or four days of the disease between it and modified small-pox. The 4th and the 8th of these characters are the only grounds of distinction between this new species of chicken-pox and modified small-pox, which I have not already considered.

And now, with regard to the 4th character, or the central depressions, I must remark, that the result of my observation does not allow me to place much confidence in this diagnostic character. Depressions in the centres of the vesicles or pustules have appeared to me to occur with uniformity only in confluent small-pox, but the confluent variety of small-pox I have not seen occur either in secondary or in modified small-pox. In all the other varieties of primary, secondary, or modified small-pox, depressions in the centres of the vesicles or pustules have been comparatively but rare occurrences, sometimes present and sometimes absent, appearing sometimes on a number of pustules, and not on others of the same individual, or perceptible only in a few pustules, while all the others continued to be full and prominent.

With regard to the 8th character, I must be

permitted to say, that when I hear of the distinct and different forms of chicken-pox and of modified small-pox, of the uniformity of their respective appearances, and of the circumstances that ought to be attended to in distinguishing them from one another, I fancy myself carried back to the time when I first began to study attentively the phenomena of the present varioloid epidemic. I had then read a great part of what had been written on the subject of varioloid diseases, and had acquired, as I conceived, from observation, as well as from reading, tolerably distinct notions of small-pox, of chicken-pox, and of modified small-pox. A very slight attention, however, to the course and appearances of the present epidemic, was sufficient to convince me how completely mistaken I was in this belief. For with the exception of the confluent variety of small-pox in the unprotected, in all the other varieties, whether of natural or of modified small-pox, instead of uniformity of appearance, I have been able to perceive only diversity, gradation, and mutual interchange of appearances in the eruptions of the different individuals whom it has attacked; and instead of being able to distinguish, by their respective symptoms, eruptions supposed to be chicken-pox from those allowed to be modified small-pox, I have found these eruptions so precisely alike, as to take from me all hope of ever being able to distinguish them. After being made sensible of the insufficiency of the diagnostic characters

between chicken-pox and modified small-pox, there seemed no alternative left, than either to abandon my former opinions, and to set about diligently observing and describing varioloid eruptions as they occurred in nature, or to attempt to support and defend these opinions by every new or anomalous symptom or change of form that might possibly happen to occur in the appearances of varioloid eruptions, as they should attack particular individuals during the progress of the epidemic. The description which I have given of this disease has been taken faithfully from nature, and I have been careful to avoid mixing with it any of my former or present opinions. In comparing this description with the accounts which I have been able to find of epidemical small-pox, it has been satisfactory to me to perceive that it agrees in so many particulars with the descriptions given of this disease by practical observers, not only in the varieties which have been regarded as genuine, but in those which have been regarded as spurious small-pox. In leaving it, as I must now do, to others to supply its defects, and correct its inaccuracies, I trust I shall be found, on conviction, as ready to acknowledge mistakes and errors as I have been fearful of falling into them.

The circumstantial relation of a few of the cases in which the vesicular form of the varioloid disease has occurred, will tend, I hope, still farther to elucidate the view which I have taken of these diseases, and to satisfy you that all the varieties of the

present epidemic at least can have had only one common origin.

The first case of this nature to which I would beg to call your attention, is that of William Wright, who was admitted into the Depot Hospital, on the 14th May, 1818, (see Appendix, No. II. Case 1st.)

The eruptive fever, strictly vesicular character, and short duration of the disease in Wright, are the circumstances chiefly deserving of notice. Whether considered as chicken-pox or small-pox, this case affords one of the purest examples of the varioloid disease in its vesicular form, in an unprotected person, to which I can refer you.

The second case of this form of the disease, occurring in the Depot Hospital, and appearing to proceed from the man Wright, was that of the boy Williamson, (see Appendix, No. II. Case 2d.)

The vesicular character of the disease in this boy, you will observe, was a little disturbed on the face, where the vesicles acquired a milky colour, while they continued limpid on the trunk and extremities. The eruption came out in successive crops, dried up by the fifth day, and appeared to me, in its character and progress, to agree in every respect with the eruption which I had been accustomed to consider as chicken-pox.

The third and fourth cases which claim, in a particular manner, your attention, and which, there is reason to believe, proceeded from the boy Wil-

liamson, are those of Dr. Hennen's two sons, (see Appendix, No. II. Cases 3d and 4th.)

In the youngest you will perceive that the disease occurred in an uncommonly mild form, milder, indeed, than in almost any person whom I have seen affected with the varioloid disease; while, in the second, the eruptive fever was severe, yet the eruption consisted of the most limpid vesicles I have ever seen. These vesicles appeared suddenly, and began to decay by the fourth day. An anonymous writer, in speaking of this case, mentions pustules, tubercles, and horny scabs, as being visible on the body at the time Mr. Bryce saw him,* which was, I have reason to believe, for the first and only time, on the fifth day. How it should have happened that I, who saw and examined this boy daily, should never have seen any of these appearances, and that there should not have been any mention made of them in Dr. Hennen's account of his son's case, I am unable to explain. But I know that it was the perfect similarity of the eruption in this boy to those which I had been accustomed to see and consider as chicken-pox, with the opportunity I had of contrasting it daily in its appearances and progress with those of a case of secondary small-pox in James Sterling, at that time under my care in the Depot Hospital, which made me rely with so much confidence on the opinion I had

* See Edinburgh Monthly Review, No. I. p. 89.

formed of the truly varicellous nature of the eruption in Dr. Hennen's son. (See Appendix, No. II. Case 5th.)

It is unnecessary for me to say any thing of the cases which arose out of inoculation with the matter taken from the vesicles of the eruption in Dr. Hennen's son, as they have been faithfully and fully detailed by Dr. Hennen in the 56th No. of Dr. Duncan's Medical and Surgical Journal ; and as, during their progress, I became convinced, from the symptoms which some of these cases exhibited, and the effects they produced, as well as from the observation of other cases of varioloid eruptions, that they were the product of a truly variolous infection, from a case of modified small-pox.

The first case in which I was led to doubt of the vesicular form of the varioloid disease arising from the contagion of chicken-pox, occurred in a girl whom I was carried to see in the West Bow, by Dr. Moncrieff. The eruption was in the sixth day of its appearance, and had become pustular upon the face, while it continued to be chiefly vesicular upon the trunk and extremities. On inquiry I found that another girl in the same stair was just recovering from severe coherent small-pox, and that several children had within a short time died in the neighbourhood of the confluent sort. In these circumstances, I could not help suspecting that the disease in Dr. Moncrieff's patient, though

it had preserved up to the sixth day a varicelloid form, was, in fact, a case of small-pox ; and this suspicion appeared to me to be confirmed by the speedy occurrence of two deaths from small pox, arising out of infection from the disease I had supposed to be chicken-pox, and by the occurrence also of four cases of the mild vesicular variety of the disease in unvaccinated children, in situations very remote from each other, and in which I had reason to believe small pox alone existed.

One of these cases I have already mentioned (p. 8.) as having occurred in Edinburgh Castle.

The second case occurred in circumstances that were calculated to fix deeply my attention. I was carried by Dr. Moncrieff to see three children of the name of Holland affected with the varioloid disease, in a house on the Castle Bank, in whom it appeared in circumstances somewhat peculiar. These children, as will be seen by Dr. Moncrieff's account,* had been vaccinated, and had previously passed through an eruption, which, by their medical attendants, had been declared to be the chicken-pox. The disease in these three children, at the time I first saw them, had unquestionably a strong resemblance to small-pox ; but as the contents of the pustules, particularly during the first days, were more limpid than in ordinary small-pox, I was disposed to believe that the disease in them might

* See Appendix, No. VII.

be chicken-pox, greatly aggravated by the heat of the weather, and by the very small and confined apartment in which they were lodged. A vaccinated infant in this family passed with little if any perceptible fever through a varicelloid eruption, in so mild a form, and of so short duration, as in the case of the younger Hennen, almost to have escaped notice.

The third case occurred in a house adjoining to the Hollands', where I found four children affected with the varioloid disease; two of these had been vaccinated, and two were unvaccinated—of the unvaccinated, one died of malignant water-pox on the 6th day, while the other unvaccinated child passed through a vesicular eruption in a still shorter period, in the mild form of chicken-pox. In the two vaccinated children also, the disease was of a very mild kind, and of short duration.

The fourth case occurred about the same time, at St. Leonard's Hill, in a tenement of houses where the children of three or four families were affected with the varioloid disease. In one of these families, of the name of Vallance, the five elder children, all unvaccinated, had this disease in the form of horn-pox; the youngest, an infant of six months, also unvaccinated, died on the 6th day of malignant water-pox. In the room adjoining to this family, two children of the name of Fleming caught the disease; the first died of confluent small-pox on the 7th day; but on the youngest, an infant

of five months, two days after it had been vaccinated, there appeared suddenly without any apparent previous illness, an eruption of limpid vesicles, about 15 in number, with hard elevated bases, and surrounded with inflammatory areolæ. The vesicles acquired in their progress a milky colour, and began to dry up by the 5th day.

Had these cases occurred sporadically, I should never have had any doubt of their being fair and unequivocal examples of chicken-pox ; but occurring as they did, at the same time, in three different places where small-pox prevailed, I felt myself compelled to believe that they were the product of variolous contagion, notwithstanding the striking resemblance which they bore to the eruptions which I had been accustomed to consider as chicken-pox. The great similarity also of the eruptions in these four cases to the eruptions which had occurred in Wright, in Williamson, and in the two Hennens, as well as the distinctly variolous character of the cases which had been produced by inoculation with matter taken from the elder Hennen, led me to suspect that I must have been mistaken in considering the eruption in him to be of a varicellous nature, and to believe that but one specific contagion could have operated in producing all the different varieties I had yet seen of the varioloid disease. It was indeed possible to conceive that the contagion of chicken-pox might, in any one of the situations to which I have referred, have co-existed with that

of small-pox ; but that it should have co-existed in them all with the contagion of small-pox, and that it should have operated just at the time the infection of small-pox ought to have taken place, appeared to me to be suppositions altogether gratuitous, and so totally devoid of probability, as to render it impossible to entertain them even for a moment.

In visiting Mr. Owen's Mills at Lanark, I was surprised and much pleased to find cases of the mild vesicular eruption occurring, not only in the vaccinated who were affected with the varioloid disease, but also in several of the unvaccinated. The houses of the cotton spinners resembled at that time a great small-pox hospital, where I found myself obliged either to believe that all the different varioloid eruptions which I saw upon the children were the product of one contagion, or to suppose, in conformity to established opinion, that the vesicular eruptions were produced by the operation of a contagion different from that which had given rise to all the other forms of the disease. But the supposition of a double origin for the varioloid epidemic at Lanark mills, did not appear to me to be justified by any thing which I could learn of the history or observe of the progress of the disease, in a situation so admirably calculated as these mills were for bringing this point to a satisfactory issue. Whether the epidemic originated from the operation of more than one contagion, is

a point to which I know Mr. Gibson's attention was from the first keenly directed; and you will afterwards perceive, from the answers which he has given to my queries, that his opinion on this point does not differ from mine.

Since the time that these cases occurred, up to the present hour, there are few parts of Edinburgh, in which the vesicular and pustular forms of the varioloid disease have not occurred together, and in which small-pox, chicken-pox, and modified small-pox have not been supposed to exist, by those who still continue to believe in the specific differences of these diseases.

It would be easy for me to adduce numerous instances in proof of this co-existence—of the great similarity which has been observed in eruptions supposed to be chicken-pox, with those acknowledged to be modified small-pox—and also of the striking dissimilarities which have occurred in the appearances and progress of the eruptions produced in unvaccinated children by the contagion of natural small-pox; but I shall content myself with detailing to you a few only of those cases which in different parts of the town have more particularly attracted my attention, since it has been turned to the observation of the progress of the present epidemic. In bringing these cases under your review, I shall omit every circumstance in their history that does not bear immediately upon their diagnostic characters.

The first cases I have to mention to you occurred in my own family, in September 1818, in two children who had been vaccinated when young, and each of whom, at different periods afterwards, had passed through an eruption which was conceived to be chicken-pox. I cannot say positively from what source the contagion in the last attack was derived, but it appeared to me, at the time, to be almost certain that I must have brought it home from one or other of two patients affected with the natural small-pox, to whom, a short time before, I had paid frequent and long visits.

In the one first affected, a girl 11 years of age, after a severe febrile attack of between two and three days' duration, there appeared on the morning of the 4th day a number of red points or papulæ, on different parts of her body, some of which were covered by small pellucid vesicles, and surrounded by fugacious areolæ of a pale red hue. In the course of the day, most of the other papulæ became covered with vesicles, which continued to increase in size till the 3d day, when they began to shrivel, became flat, and acquired somewhat of a purulent appearance. In this state some of the pustules became depressed in their centres, hard at their bases, and surrounded with narrow inflammatory circles. The pustules dried into yellowish crusts, several of which fell off by the 7th day, leaving behind them very slight discolorations in the parts which they occupied.

During the progress of the eruption in this case, a few fresh vesicles continued to come out daily, all of which however decayed, many of them without becoming pustular, at the same time with those that had appeared first.

About ten days after the appearance of the eruption in this girl, her brother, a boy of 9 years of age, became affected with slight sickness, accompanied by sense of weariness and pains in his limbs, which continued for two days, but with little if any other symptom of fever. On the morning of the 3d day, a distinctly formed vesicle was discovered on the left arm, which in the course of the day became surrounded with a rose-coloured areola. The vesicle continued to have a limpid appearance for nearly three days; in shrivelling, it acquired a slightly milky colour, and was, without becoming purulent, converted into a thin scale, which fell off by the 7th day, leaving scarcely any perceptible discoloration behind it.

No other mark of eruption could be discovered on any part of this boy's body.

If in judging of these cases we are to adhere strictly to the definitions which have been given, the first of these cases must be considered as a case of modified small-pox, and the second only as a distinct case of chicken-pox.

About the middle of December 1818, four cases of the varioloid disease, supposed to be chicken-pox, occurred in a family of seven children residing in Rankeillor Street. In visiting these children, with their medical attendant, Mr. Wishart, I found the disease in them of an uncommonly mild form, but I was not able to perceive in it any appearances at all different from those of mild cases of modified small-pox, which I had seen in other children in Edinburgh, or at Lanark; and in this family the disease in its progress appeared to me

to exhibit the same varieties as at these places, in the different individuals whom it attacked.

The oldest of those affected, a girl 12 years of age, was sick or feverish for a day at first, when an eruption of vesicles broke out suddenly, which in their progress became pustular, and at last scabbed.

In the 2d, a girl 9 years of age, the eruption, which broke out with very little previous fever, was scanty ; some of the vesicles were without any perceptible hardness at their bases, and others attended with a considerable degree of hardness. These vesicles became pustular in their progress, and a few of them depressed in their centres ; some of them did not begin to scab on the legs before the 8th day. This girl is marked by one pit on the forehead.

The 3d, a girl of 6 years of age, after being feverish for two days, had an eruption of papulæ, which never became distinctly vesicular, and the fluid contained in which dried into thin scales that fell off without leaving any marks behind them.

In the 4th, an infant of 4 months, a copious eruption, with very little previous sickness or fever, broke out, which was at first vesicular, afterwards became pustular, and at last scabbed. Some of the pustules in this child did not begin to scab before the 8th or 9th day ; and the scabs, in falling off, left behind them a few pits or marks upon the face.

I was unable to perceive, in the varioloid disease in the different children of this family, who had all been vaccinated, that uniformity in its appearances and progress which has been supposed to be characteristic of chicken-pox. It was with matter taken from the eruption in one of these

children, that Mr. Bryce made two of the trials he mentions. The particular source from which the contagion had been derived could not be traced, but I knew that small-pox had existed, and were at the time existing, all round in the neighbourhood. In proof of this, I may refer you to the cases mentioned in the following letter from Mr. White:—

“ 19, BUCCLEUGH PLACE, *Sept.* 12, 1819.

“ MY DEAR SIR,

“ I kept no notes of the small-pox cases which you saw with me last year in Buccleugh Street and Crosscauseway; and I fear that my recollections, though assisted by those of the parents of the children, will but indifferently supply the defect. I shall, however, give you as concise and distinct a statement as I can.

About the end of September, 1818, Margaret Hay, Buccleugh Street, aged 11, unvaccinated, was seized with high fever, accompanied with delirium, which lasted for three days, both of which were greatly lessened by a spontaneous hæmorrhage from the nose, that took place on the morning of the third day. On the same day, a papular eruption was observed on the face, which on the 4th day was pretty generally diffused over the body. The papulæ, which now became vesicular, were surrounded with bright areolæ—were confluent on the face, and gradually assumed a pustular appearance, accompanied with swelling, especially of the face, producing blindness, which lasted for about three days. About the 10th day the eruption began to blacken, at which time the fever was observed to have somewhat increased. The scabs began to fall off about the 15th day, but many of them remained for three weeks,

leaving blains and a few pits on different parts of the body.

DAVID HAY, aged 6 years, unvaccinated, about ten days after the appearance of the eruption in his sister Margaret, was seized with severe fever, accompanied, about the 5th day of the fever, with slight delirium. About this time an eruption of thickly set papulæ was observed, which on the 4th day became vesicular; the vesicles, filled with a milky-coloured fluid, were coherent, or rather confluent, on the face and arms, and accompanied with a good deal of heat and redness. At this period (4th day of eruption) swelling of the face supervened. Though the vesicles increased in size till about the 10th day, when they began to blacken, yet they never matured or became properly pustular. About this time œdema of the feet began, and continued with more or less fever during the whole course of the disease, which lasted for nearly three weeks. At the latter end of that period the scabs fell off, leaving blains and numerous slight depressions on the skin.

MARGARET BREMNER, aged 17, who was serving in Mr. Hay's family at this time, and who had never been vaccinated, was seized with very smart fever, on the third day of which a papular eruption made its appearance. It was found very inconvenient for the family at that time to keep her in their house, and she was therefore, at this stage of the disease, removed to the Royal Infirmary. I understood that her recovery was very tedious.

The other family that had small-pox, concerning which you wish for information, was that of a Mr. Stewart, spirit-dealer, Crosscauseway, who had three children that were attacked with variola. The eldest, Jean Stuart, aged $7\frac{1}{2}$ years, vaccinated, was in the month of September, 1818, seized with severe sickness, which lasted for two days. On the third day an eruption of papulæ came out, which, on the second day after their appearance, became vesicu-

lar. About the fourth day, the mother thinks, they resembled the *bladder-pock*. Towards the 6th or 7th day they blackened, and the skin peeled off, or, as the mother expressed it, *shieled off*, leaving blains. A few of the scabs that were longer in falling off left permanent pits in the skin.

MARIAN STEWART, aged $6\frac{1}{2}$ years, unvaccinated, was seized, about the beginning of November the same year, with severe fever, attended with high delirium. On the third day a copious eruption of papulæ came out, which became covered with vesicles that increased in size till about the eighth day, when they began to blacken. Maturation might properly be said never to have taken place, as the vesicles became flaccid and shrivelled, and her strength gradually declined till about the thirteenth day of the eruption, when she died. Swelling of the body came on gradually, and swelling of the face took place about the third day of the eruption, causing blindness, which, with fever of the typhoid type, lasted till the day of her death.

GEORGE STEWART, aged 2 months, unvaccinated, was seized also about the beginning of November with severe fever, accompanied with convulsive fits. On the second day of the fever, a very red thickly set papular eruption came out. About the fourth day the eruption became vesicular, and four days after were filled with a milky-coloured fluid. About the tenth day they began to blacken, and eight or ten days after that period the greater part of the scabs had fallen off, leaving blains and permanent pits on the skin.

On making inquiry where the children could have caught the infection, the mother had no hesitation in tracing it to a school that the children were attending. This school is situated in a back land in Buccleugh Street, in the immediate neighbourhood of Mr. Hay's: and I found two families living behind Mr. Hay's house, in which, during

the months of July and August, 1818, natural small-pox occurred.

These are the facts respecting those cases, as far as I can gather them; and I shall be happy if they contribute in any degree to the mass of evidence which you have indefatigably collected on the important subject of your present investigation.

Your's very sincerely,

GEORGE WHITE.

The following short histories of the cases of 5 unvaccinated children affected, in the month of March last, with small-pox, in a family residing in Causewayside, will afford you an example of some of the differences produced in the appearances of the present varioloid epidemic, by the unknown peculiarities of individual constitution.

JAMES HARDIE, aged 14. After three days confinement from eruptive fever, about 20 vesicles, which caused much uneasiness from their ichiness, came out. These vesicles became pustular in the course of two or three days, and scabbed about the 7th or 8th day. Besides the ichiness, this boy never experienced any uneasiness after the appearance of the eruption.

ROBERT HARDIE, aged $6\frac{1}{2}$ years. About ten days after the eruption in James made its appearance, was seized with smart fever of four days' duration, after which a nearly confluent eruption came out, which in the course of three or four days formed into distinct pustules, many of them depressed in their centres. On the 3d day, swelling of the face supervened, producing blindness, which lasted for 9 days. The fever did not entirely abate during the course of the disease; but it became greatly aggravated about the

9th or 10th day, when the pustules began to fade, and to dry into crusts and scabs. This secondary fever continued severe till even after the falling off of most of the scabs, which did not happen before the lapse of several days. Though this boy seems to have recovered his health, he is at present (September 4th,) deeply marked with the disease.

NANCY HARDIE, aged 10 years. About a fortnight after the appearance of the eruption in Robert, was seized with severe fever, which continued for three days, when a few papulæ came out, the greater number of which remained such, without becoming either vesicular or pustular. About twenty however became vesicular, acquired a milky colour, and then dried into thin scales, which fell off about the 6th day, leaving little if any discoloration on the points which they occupied.

CHRISTIAN HARDIE, aged 4 years. After three days smart fever, a popular eruption made its appearance, which in the space of twenty-four hours became in general vesicular, while others from the first were pustular. On the 5th day, some of this eruption still remained vesicular, some of it pustular, and some of it again had entirely faded away, without passing into the state either of vesicles or pustules. The scabs on the larger pustules formed about the 7th day.

ELIZABETH HARDIE, aged 1 year. After three days smart fever, a copious popular eruption was discovered over the whole body—the papulæ on the face were small and pointed, those on the trunk and extremities were seated on broader bases. The papulæ became vesicular on the 2d day, and continued so till the 5th day, when they decayed without becoming pustular—the scales which were formed fell off before the 8th day, leaving slight blains on the skin.

During the progress of the small-pox in the children of this family, the vesicular and pustular forms of the varioloid disease prevailed extensively along the street in which they resided, while the vesicular form only of this disease was to be perceived in the contiguous and parallel row of houses in Gray Street, Newington, where the children who were at the same time affected with the varioloid disease had all been vaccinated. In proof of this statement, I subjoin the following letter from Dr. Tweedie.

“ Edinburgh, 25th August, 1819.

“ MY DEAR SIR,

“ In answer to your inquiry regarding the family which you visited with me, residing in Gray Street, Newington, affected with a vesicular eruption, I have to state, that four out of six children were affected. The eruption in all of them was preceded by smart fever, which lasted for three days: it was vesicular in its origin and progress, the lymph continuing perfectly transparent during the progress of the eruption, which remained for three days, when it terminated in thin crusts. In the eldest child there are several very slight depressions distinctly visible on the body. In the others no pits could be observed. One of the servants of the family had a smart feverish attack for three days, when a few vesicles appeared on the thighs, very small, which soon shrivelled without forming any incrustation. I may remark, that all the children were vaccinated, and also the servant, who was similarly affected.

“ I saw many cases of both distinct and confluent small-pox in the immediate vicinity, and I am informed that the vesicular disease prevailed, and was termed chicken-pox,

in the lane in which the above family resided. I am, my dear Sir, yours truly,

“ALEX. TWEEDIE.”

In the beginning of January last, I was invited by Mr. Newbigging, to see four children in a family in George Street, who were affected in succession with the varioloid disease. They had all been regularly vaccinated in infancy, and had each of them, except the first to be mentioned, passed through an eruptive disease, which, at the time of its occurrence, was conceived to be chicken-pox.

The first affection in this family was an infant of 9 months old, who, after a very slight sickness, had an eruption of watery vesicles, which the mother compared to little blisters produced by burns, confined chiefly to the hairy scalp, neck and breast. These vesicles, without manifesting the least tendency to suppuration, began to shrivel and dry up, by the fourth day, into small thin scales, which fell off by the sixth day, without leaving any marks behind them.

The second was a girl of 7 years of age, who, about a fortnight after the eruption appeared in her infant sister, was seized with a severe febrile attack of three days' duration. On the evening of the fourth day, a scanty papular eruption was discovered on different parts of her body, which speedily became vesicular, acquired a milky-colour, and began to dry into thin scales by the fourth day of the eruption. These scales fell off by the sixth day, without leaving any marks behind them.

The third affected was a boy of 10 years of age, who, about a fortnight after the appearance of the eruption in

the last mentioned patient, was seized with a violent fever, accompanied by great restlessness and delirium, which lasted for three days. On the fourth day, a copious papular eruption made its appearance all over the body: these papulæ gradually became vesicular, and from that state many of them passed speedily into pustules, some of which became depressed in their centres, and others had a strong resemblance to cow-pock pustules. The eruption in this boy continued to come out in successive crops for several days. Some of the pustules began to scab by the eighth day; while, in others, this process was not completed before the fourteenth. Many of the scabs remained on the body from two to three weeks before falling off, and left behind them blains, which remained for a much longer period. He has at present (3d September) a few marks only on the side of his face.

In the fourth, a child of 3 years of age, after a severe eruptive fever of from three to four days continuance, a scanty papular eruption came out, which became speedily vesicular. The vesicles broke, shrivelled, and dried, by the fourth day, into thin scales, which fell off by the seventh day, without leaving any marks behind them.

In three of the children in this family, you perceive that the varioloid disease was strictly vesicular; yet, in two of them, the eruption was preceded by fever equal in severity and duration to the eruptive fever of small-pox. In the case in which the eruption became pustular, the disease, both in its general appearance and duration, had a stronger resemblance to natural small-pox, even of the severer kind, than in most cases which I have seen of modified small-pox.

One of the companions of the children last mentioned, who lived in their immediate neighbourhood, soon after their illness, was attacked with the varioloid disease. You will find the history of his case, and that of another to which it gave rise, very accurately detailed in the following statement, with which I have been favoured by Dr. MacLagan. These two cases were regarded as chicken-pox by some of those who still continue to believe in the specific nature of this affection, and in the possibility of distinguishing it from modified small-pox.

“ JOHN FULLARTON, æt. 7. Two days previous to the eruption, was observed to be languid and uneasy, and to have lost his appetite for food. His skin was hot, his tongue foul, and he passed two restless nights. On the third morning, the servant discovered several red points on different parts of his body, but chiefly on the breast, back, and at the roots of the hair, on the temples and forehead. When I saw him in the forenoon, the eruption had become vesicular in several places, while, in other parts of the body, fresh papulæ had appeared.

“ In the course of four days, the vesicles lost their transparency, becoming of a white opaque colour; they then became shrivelled, dried, and scaly. The scales on the body quickly disappeared, leaving scarcely any traces; while those on the temples and forehead at the roots of the hair left slight elevations above the skin for several days. Several of the papulæ disappeared without becoming vesicular.

“ All fever and uneasiness left him as soon as the eruption appeared, nor was there any fresh accession during it.

“ A fortnight after the disappearance of the eruption in this boy, my youngest child, then about six months old, who slept in the same room, was observed to have an eruption, partly papular, partly vesicular, from the commencement, unattended by any apparent sickness or fever, either previous to or during its continuance. This eruption, after three or four days continuance, declined by almost imperceptible degrees, leaving very faint traces, and these remaining only a few days ; but, in about ten days after its complete disappearance, a second eruption, preceded by two days of smart fever, made its appearance. This eruption was also partly vesicular, partly papular, from the commencement, and fresh papulæ continued to come out till the end of the third day ; on which day also there was a fresh accession of fever. Many of the papulæ which had first come out were by this time faded. The other papulæ assumed the vesicular form. The vesicles were of a globular form, of various sizes, but particularly distinct, full, and prominent. The fluid they contained was very pellucid, and the cuticular bag itself of great tenuity and transparency. Many of the papulæ, for three or four hours after their first appearance, had their base surrounded by an areola of a very vivid red colour, of an irregular circular form, about the size of a sixpence. In five or six days almost all the vesicles had become opaque, shrivelled, and scaly ; and these scales quickly dropping off, left, in a few places only, a slight elevation above the cuticle, which also soon disappeared. In a few places, however, the vesicles assumed the pustular form, and became festered and irritable sores, which, after some time, scabbed and disappeared, leaving slight cuticular elevations for some days. After a short time, however, neither elevations, pits, nor marks of any kind, were visible. Both these children were vaccinated, went through the regular progress of the disease, and have a

very distinct and characteristic circular cicatrix from the vaccine vesicle."

The second occurrence of the eruption in the case of the infant last mentioned, after an interval of ten days, is an event which was observed to occur in several children at Lanark, and has happened very lately in this place, in cases afterwards to be mentioned. It is curious to remark, that, in almost all these cases, the first attack has been that of mild vesicular, the second that of the vesiculo-pustular eruption.

The cases mentioned in the following letter, with which I have been favoured by Dr. Hay, were considered at the time they occurred to be cases of chicken-pox.

EDIN. 67, *George Street*, 21st August, 1819.

"MY DEAR SIR,

"I subjoin a short account of the cases of the varioloid disease in Mr. ———'s family, two of which you saw with me at the Main Point.

"Your's truly,

"DAVID HAY."

"JOHN ———, æt. 8, brought the disease from school, in which several children had been affected.

I saw him on the 15th of November; he was covered with an eruption of clear vesicles, which appeared the evening before; he had been ill for two or three days, feverish and sick; the fever left him on the coming out of the eruption; on the 16th, more vesicles appeared; on the 17th, those which appeared first broke and scabbed, and on the 18th, those that remained scabbed also; he had no secondary fever.

Agnes and Marion, his sisters, the first aged 7, and the

second 5 years, were attacked with fever and drowsiness on the 29th, which continued till the third day, when an eruption of papulæ took place, with relief to the febrile symptoms. On the fourth, and even on the fifth, more papulæ appeared, in some parts the eruption quickly became vesicular, in others it more slowly ran on to suppuration; in the elder, the pustules remained unbroken to the 7th, in the younger to the 6th day. As in their brother's case, there was no secondary fever, but the blains remained for a considerable time.

These children were vaccinated by myself—and went through the regular progress of the inoculation."

It is obvious, from Dr. Hay's description, that the varioloid disease in the first of these children, was an example of the mild vesicular eruption, agreeing in all its characters with the descriptions usually given of chicken-pox, while, in the other two cases, the vesicles became pustular; and the length of time which elapsed before some of the pustules dried into scabs, shows that the disease had more of a variolous character, and resembled modified small-pox more than it did chicken-pox. On my way to visit these children with Dr. Hay, I took occasion to show him a child dying of confluent small-pox, in the West Port, very near to the house in which his patients lived; and a very little farther on, in the same district, I might have shown him at the same time, two cases of severe modified small-pox in children, patients of Mr. Alexander, who had been vaccinated several years before. They were attacked with the varioloid

disease in its pustular form. I mention these circumstances, merely in proof of the co-existence of small-pox in that district, with a disease supposed to be chicken pox.

In the Canongate, a street into which many closes open that are inhabited by the lower orders of the people, and where a great number of children are unvaccinated, the varioloid epidemic may be said to have prevailed from its commencement, and to have been particularly fatal. I shall select for your perusal a few examples of the more remarkable diversities of the disease which have occurred in this street.

A roseolous rash, as I have already often mentioned, has been an extremely common precursor of the varioloid eruption, and has sometimes appeared along with, and attended it during its progress. In the greater number of cases, this rash has had precisely the characters assigned to roseola by Dr. Willan. In a few, it has assumed a form distinctly rubeoloid, which has sometimes rendered it difficult to say, whether, in the individuals in whom it appeared, it was to be considered as roseola or rubeola. The three following cases of this sort, were pointed out to my notice by Mr. M'Intosh, and I did certainly at the time regard, and am still disposed to regard them as well-marked examples of the co-existence of measles with small-pox.

JANET RANKIN, æt. 18 months, unvaccinated. About the 7th day after the appearance of an eruption of small-pox, an efflorescence, in distinct patches of a crescentic shape, made its appearance, preceded for two days by slight fever, watering of the eyes—frequent sneezing—slight sore throat, and cough. This efflorescence continued bright till the 4th day after its appearance, when it began to fade; by the 6th day it had almost entirely faded on every part of the body except the breast; and by the 9th day, had quite disappeared, as had also the constitutional symptoms by which it had been ushered in.

MARY BROWN, æt. 6 years, unvaccinated. On Sunday the 31st January, was observed to be rather fretful and restless, with heat of skin, and other symptoms of a febrile attack, accompanied with frequent sneezing and watering of the eyes; in this state she continued till the evening of the 3d February, when the whole of her body was observed covered with an efflorescence of a red colour.—February 4. (2d day of eruption.) The efflorescence which appeared last night is in the form of distinct patches, many of them of a crescentic shape, and communicates the sensation of roughness, when the fingers are drawn gently over the surface of the body. Sneezing and watering of the eyes are somewhat abated.—(3d day.) Eruption much as yesterday. other symptoms continue; had rather a restless night.—(4th day.) Rubeolous eruption still florid. On the upper and lower extremities, and likewise on the face, there are several pure vesicles about the size of small split peas, with little if any inflammation round their bases, and containing a transparent fluid. This eruption was discovered last night. Febrile symptoms abated. Is troubled with frequent cough.—(5th day of rub. and 3d of var. eruption.) Rubeolous eruption still bright on the face and arms, but somewhat faded on the trunk and lower extremities, where it is of a bluish cast. The variolous eruption is much the

same as yesterday. The vesicles are increased in number on the face, where they are at present smaller than on the extremities. The fluid in two on the left thigh has assumed a milky colour.—(6th day of rub. and 4th of var. eruption.) Rubeolous eruption has almost entirely disappeared from the trunk and lower extremities, but is still quite distinct on the face and arms. A few more vesicles have come out on the back and abdomen. The contents of some of the vesicles have acquired a milky appearance, and are visibly depressed in their centres.—(7th day of rub. 5th of var. eruption.) Rubeolous eruption almost entirely gone. Several of the vesicles on the face have now become pustular, depressed in their centres, and surrounded with a considerable degree of inflammation. The whole face is much swollen, producing blindness of the left eye. The fluid in the vesicles on the back, posterior part of the thighs, and likewise in a great number of those on the anterior surface of the thighs, is now of a whitish colour. Some of the vesicles on the thighs are still quite transparent. On the upper surface of the tongue, there are several small white papulæ like aphthæ, attended with much uneasiness.—(8th day of rub. and 6th of var. eruption.) Rubeolous eruption has entirely disappeared, and the cuticle on the face has for the last two days been peeling off in the form of scurf. The whole of the eruption on the face has now become pustular, and the inflammation round the bases of the pustules is greatly increased in extent and brightness. The swelling of the face is much increased, producing blindness of both eyes. Several of the vesicles on the arms and legs have been scratched, and the fluid evacuated. Some seem to have discharged their contents spontaneously, and have a puckered appearance. The greater number, however, of the vesicles on the upper extremities and back are yet entire, of a spherical form, and contain fluid of a semitransparent colour. Tongue much the same as yesterday.

Cough continues, and she complains of slight sore throat.—(7th day, var. eruption.) Some of the pustules on the face have been scratched, and have formed irregular yellowish crusts on their tops—those which are entire show the central depression distinctly. The eruption on the back has become pustular. The fluid contained in the greater number of the vesicles on the arms and anterior surface of the thighs is semi-opaque. Some have formed scabs of a circular form and wood-brown colour. The pustules on the tongue have subsided, and are not so painful. Swelling of the face and eyelids increased.—(8th day, var. erup.) Many of the pustules on the face have begun to scab; the vesicles on the extremities have in some places small scabs on their tops, with fluid underneath them; but many of them are still quite entire, and filled with a semi-pellucid fluid. Swelling of the face and febrile symptoms are increased. Cough and sore throat diminished.—(9th day, var. erup.) The whole of the eruption on the face is now covered with yellow crusts. Many of the vesicles on the back and extremities are still entire, and contain fluid of an ash-white colour, while others have brown scabs on their surface. Swelling of the face continues undiminished. Complains of pain in hands and feet, the latter of which are slightly œdematous. Tongue clean.—(10th day, var. erup.) Eruption on different parts of the body nearly as yesterday. Swelling of face diminished. Continues to improve in other respects.—(11th day, var. erup.) Several of the crusts on the face have fallen off. The process of scabbing on the upper extremities is nearly completed, but there are still a few distinct pustules on the hands. On the legs and feet the eruption is still distinctly pustular. Functions natural.—(12th day, var. erup.) Eruption on the face and upper extremities much the same as yesterday. A great number of the scabs on the thighs have been rubbed off, and have left ulcerating surfaces underneath.—(13th day, var. erup.)

All the scabs on the face have fallen off, leaving tubercular elevations on the spots which they occupied. The eruption on the feet is still distinctly pustular, without central depressions. Functions natural.—Many of the scabs did not fall off in this case before the end of the third week, and left behind them pits, tubercular elevations, and blains. The pits are permanent, and many of the blains are at present (10th September) quite visible on different parts of her body.

JOHN STRAN, æt. 4 months, unvaccinated. About the middle of February last, was seized with febrile symptoms, accompanied with sneezing and water of the eyes. On the 3d day, a rubeolous rash, in distinct patches of somewhat irregular figures, made its appearance. On the 4th day, after the appearance of the efflorescence, a papular eruption came out. By the fifth day, the rubeolous rash had almost entirely disappeared. On the 3d day of the papular eruption, the papulæ became pustular. On the 7th day, the pustules were depressed in their centres, and scabbed the day following. Several of the scabs fell off by the 11th day, leaving tubercular elevations of the skin behind them. Two other children of this family, whose cases are next to be mentioned, had passed through the measles about 6 weeks before they were attacked with the varioloid disease; and the mother had been likewise affected with measles about 8 days before they appeared in the infant whose case has just been related.

You will perceive that the rubeolous rash in the first of these cases, did not appear before the 7th day of the variolous eruption, while, in the 2d and 3d cases, the rubeolous eruption preceded for two days the variolous. The second case is deserving of your notice, not only on account of the varioloid

eruption supervening to a rash, which had every appearance of measles, but also on account of the length of time which eruption continued in a purely vesicular state before it became pustular.

I am aware that the possibility of the co-existence of two specific diseases in the same individual has been called in question, upon a principle usually supposed to have been first introduced into medical reasoning by the late Mr. Hunter, but which had been previously laid down in the following aphorism respecting small-pox, to be found in page 125 of an *Inquiry into the Origin, Nature, and Cure of Small-Pox*, by Dr. Thomas Thompson, physician to his late Royal Highness Frederick Prince of Wales, printed in London in 1752. "For two diseases differing essentially in kind, cannot exist at one and the same time." This proposition, though it holds generally true, is, I am disposed to believe, by no means universally applicable, more especially in the combinations of small-pox with other diseases.

Two other children in the family of Stran became affected with the varioloid disease, in the form of natural small-pox, in one of whom the disease proved fatal. The following is a brief outline of the histories of these cases.

Canongate, Milroy's Close.

HELEN STRAN, ætat. 3 years, unvaccinated.—About the middle of February last was seized with severe febrile symptoms, accompanied by pain of epigastrium. On the

2d day of this febrile attack, a roseolous rash came out, which, in the course of two days, gave place to a copious vesicular eruption. The vesicles were placed upon small red papulæ, and surrounded with bright areolæ, many of which coalesced. In some parts of the body, particularly the face, upper extremities, and thighs, the vesicles became coherent.—On the 5th day of the eruption, swelling of the face and eyelids supervened, producing blindness, which continued throughout the course of the disease. Almost the whole of the vesicles had subsided by the 6th day, and the cuticular covering of many was entirely detached, presenting an appearance not unlike that produced by an extensive superficial burn.—On the 8th day, some of the vesicles on the thighs contained a purulent fluid; these manifested a tendency to run on to mortification, and were surrounded with areolæ of a deep purple colour.—Died on the 9th day.

JEAN STRAN, ætat. 2 years, unvaccinated.—About two days after the eruption in Helen appeared, became feverish, and continued so for two days, when a papular eruption came out, which became pustular by the 3d day; the pustules were placed upon deep seated bases, and surrounded with areolæ. The eruption began to scab on the 8th day, and by the 11th the greater number of scabs fell off, leaving behind them hard tubercular elevations. Some of the scabs did not separate before the 14th day, and have left permanent pits in the skin.

At the top of the same stair in which the Strans lived, a child of the name of Rennie, who had been vaccinated three times without effect, became also affected with the varioloid disease in the form of malignant water-pox, which continued to come out, you will perceive, from the following short

relation of her case, in successive crops, till the day of her death.

BARBARA RENNIE, *ætat.* 3 years, had been vaccinated three times, without effect. After four days severe fever, attended with headach, and pain of epigastrium, a roseolous rash came out, and two days after a purely vesicular eruption. The vesicles never filled well—were coherent on the body and extremities, but distinct on the face. A few of the vesicles became pustular, and some formed small scabs on their tops. Fresh vesicles came out on different parts of her body till the day of her death, which happened on the 9th day of the eruption.

The case which follows next, occurred in the close directly opposite to that in which the Strans lived.

ELIZABETH HAMILTON, *ætat.* 2 years, unvaccinated. After three days smart fever, a copious papular eruption made its appearance, which soon became vesicular. On the 4th day swelling of face and œdema of both upper eyelids supervened, producing blindness, which continued till the morning of the 7th day, when she died, previous to which the vesicles seemed to subside.

This, and the case preceding, were represented by some of the neighbours as examples of death occurring in children after vaccination; but the first, though vaccinated at three different times, never received the infection; and the second, though at first believed to be vaccinated, bore no mark of that process on any part of its body. The mother, indeed, of this child, confessed, with re-

gret, after its death, that it never had been vaccinated, and that she had said that it was vaccinated, merely to keep her husband's mind at ease with regard to it. May we not suspect that some of the deaths reported to have taken place from small-pox after vaccination, have had similar origins?

The histories of the four following cases, which occurred in Bakehouse Close, Canongate, about the same time with those last mentioned, will be found to afford an additional illustration of the diversities I have every where seen produced in the appearances of the varioloid disease, by peculiarity of constitution, and by previous vaccination.

ANNE NICHOL, ætat. 11 years, unvaccinated. About the end of February was attacked with fever, in a severe form, which was at first supposed to be typhus, in consequence of which she was sent to the Infirmary. The febrile symptoms continued for three days, when a roseolous rash came out; and in the course of 36 hours after, a copious pustular eruption made its appearance. The pustules formed into horny scabs by the 9th day, which in falling off left behind them a few pits on the skin.

ALEXANDER NICHOL, ætat. 4 months, unvaccinated. About a fortnight after the attack on Anne, and with scarcely any previous fever, a papular eruption came out, which soon became vesicular, and remained so till the 4th day, when it became generally pustular; scabbed on the 7th day.

JAMES M'GRIGOR, ætat. $3\frac{1}{2}$ years, unvaccinated. Nearly three weeks after the attack on Anne Nichol, was seized with smart fever; on the 3d day of which, a confluent vesi-

cular eruption came out, interspersed with a few phlegmons of the size of a large field bean ; the vesicles subsided between the 5th and 6th day. Swelling of the face and eyelids supervened, and he died on the 7th day of the eruption. This child, and the three former, lived in houses immediately adjoining one another.

GEORGE MORRISON, ætat. 5 years, vaccinated, and who lay in the same bed with Alexander Nichol, after two days slight indisposition, had an eruption of about half a dozen pure vesicles on his back, between the shoulders. In the space of three days, these vesicles decayed into thin dark-coloured scales, which fell off without leaving any perceptible mark behind them.

In these cases, you have an example in one child of distinct natural small-pox, in the form of horn-pox ; in a second, of vesiculo-pustular small-pox ; in a third, of malignant water-pox in three unvaccinated children ; and in a fourth, of the vesicular eruption, in its milder form, in a vaccinated child ; the disease in all apparently proceeding from the contagion of small-pox.

The cases which are described in the following letter, with which I have been favoured by Mr. Barker, as occurring in Elder Street, in April last, were regarded by some professional gentlemen who saw them, as cases of chicken-pox.

“ DEAR SIR,

“ AGREEABLY to your request, I send you a short account, as far as my memory enables me, of the appearances and progress of the chicken-pox, or varioloid disease, as it appeared in my children.

“The eruption appeared first on my eldest daughter, aged 5 years, without any apparent previous fever, or other complaint, nor was there any perceptible quickness of pulse, or heat of skin, until the second day, when these symptoms supervened, and continued with very little remission till the fifth day. On the second day of the eruption, the greater part of that upon the body was purely vesicular, containing a transparent lymph, while the contents of that upon the face was of a straw or light yellowish colour, which upon the 3d day had assumed the true purulent appearance. The eruption on the body, which contained a transparent lymph, had now (the 3d day) assumed the straw colour. On the 4th day, almost the whole of the eruption had concreted into dark brown scabs, leaving only a few of the vesicles shrivelled on the top, and still containing a fluid; and these, on the 5th day, were likewise formed into scabs. Betwixt the 2d and 3d day, a fresh eruption appeared, going through the same course as the first, and scabbing on the 7th or 8th day. During the inflammatory stage of the eruption, she complained much of pain on the surface of the body. On the 5th day, the fever had considerably abated, nor was I sensible of any secondary fever following. The scabs did not begin to separate until the 10th day of the eruption, nor did they all separate before the 15th or 16th day; and the vesicles on the face, which assumed the purulent appearance, have left three or four distinct pits.

“Five days after the appearance of the disease in my eldest daughter, the eruption appeared in my second daughter, aged 17 months. It kept the vesicular appearance until the 3d day, when it changed to a straw colour, and on the 4th day it had concreted into dark brown scabs, which did not begin to separate until the 10th or 11th day. As in the first case, a fresh series of vesicles came out after the 2d day, which went through the same course as the first.

Like her elder sister, this child had no perceptible fever until after the eruption appeared, which even then was but trifling, she having continued to go about as usual.

“Two or three days after the eruption in the last-mentioned child, my youngest daughter, aged four months, who had passed through vaccination about three weeks before, had the same eruption, but attended with little or no fever. The eruption retained the vesicular appearance until the 3d day, when it likewise assumed a light straw-colour previous to the process of scabbing, which commenced between the 4th and 5th day. The scabs began to separate about the 9th day. In this, as in the two former cases, there was not the smallest appearance of secondary fever.

“This is but a hasty and imperfect sketch of the disease as it appeared in my family, the length of time which has elapsed having prevented me from recollecting, with more minuteness and accuracy, the appearances and progress of the disease.

“I am, dear Sir,

“Yours most truly,

“JOHN BARKER.”

Edinburgh, 25, Elder Street,

7th Sept. 1819.

It is needless for me to remark to you, that the disease in these children exhibited the appearances of the eruption which I have described under the name of the vesiculo-pustular small-pox, modified by vaccination; and that for my own part, I could not perceive in them any symptom at all different from those of ordinary modified small-pox. I was the more disposed to regard them as such, because I knew that they, as well as natural small-pox,

existed at the time in the immediate neighbourhood, in houses intervening between Elder Street and James's Street; in the latter of which I had occasion to see two cases of natural small-pox. One of these cases I have already mentioned, as affording an example of death in a pregnant woman from confluent small-pox. The sister of this woman had, at the same time with her, a copious eruption of distinct small-pox. The only infection which I was able to trace to this house, occurred in a girl who had been vaccinated, and whom I was carried to see as a person affected with chicken pox, the origin of which could not be traced. I learned from this girl, however, that she had lived in the same stair with the two women who laboured under natural small-pox, and that she had had frequent intercourse with the one affected with distinct small-pox during her recovery.

After giving you these proofs of the continued existence of the varioloid disease in its vesicular and pustular forms in every part of Edinburgh during the progress of the present epidemic, and of the striking diversities which it has every where manifested in the vaccinated and in the unvaccinated, I shall next proceed to detail to you, as briefly as possible, the histories of the cases which have been particularly referred to by Dr. Alison in his letter to Mr. Bryce, and which have all of them been considered by Mr. Bryce as examples of

chicken-pox, and by Dr. Alison as examples of a disease different from modified small-pox.

In calling your attention to the cases that occurred in Jamaica Street, the place first mentioned, I must premise, that almost the whole of the children in this street have been vaccinated, and that during the preceding as well as the present year, a varioloid disease has occurred in it, that has usually been termed chicken-pox by the indwellers and their medical attendants. In the beginning of January, however, of the present year, the varioloid disease attacked five children, living in the house No. 26 of this street, one of whom only had been vaccinated. The disease occurred first in this person, and was regarded as chicken-pox on account of its vesicular character and short duration; but in being communicated to the other children, it produced a very tedious vesiculo-pustular eruption in one child, and malignant water-pox, which proved fatal, in another; and in the other two children it produced an eruption, which their medical attendant denominated horn-pox. The disease was again communicated from these children in a pustular form, to an unvaccinated girl, about five years old, who lived in the other end of the street, but who used to play with her companions in the stair of the house where the small-pox existed.

From that period, till the beginning of May last, I have not been able to find that the varioloid disease has existed in Jamaica Street. But in the

commencement of May the disease re-appeared in an unvaccinated child, of the name of Milne, living in the house No. 25. By the end of this house there passes to Stockbridge, the village in its immediate neighbourhood, a cross-road, much frequented, and on which the children from Jamaica Street and from Stockbridge not unfrequently meet to play together. At Stockbridge, again, where vaccination has been less generally practised than in Jamaica Street, the natural small-pox in all its forms prevailed, from the time of their disappearance in Jamaica Street, till the varioloid disease attacked the child Milne, the following history of whose case will be found, I believe, to be accurate.

MARGARET MILNE, ætat. 9 months, was vaccinated on the 11th of May, during the progress of a roseolous rash of some days standing. On the evening of the same day she became feverish, and was unable for at least three days even to sit on her mother's knee, or to hold up her head. In this state she continued till Friday the 14th, when a vesicular eruption made its appearance. This eruption became pustular on the third day; on the 4th, a great many more vesicles came out on the back of the neck; and on the 6th, swelling of the face supervened, accompanied with œdema of the eyelids, producing blindness which lasted for three days. The throat appeared to be inflamed, and there were several pustules to be seen on the tongue and inside of the mouth. Several more vesicles came out on different parts of the body on the 7th day, while at the same time, scabs began to form on some of the pustules, but on others the scabbing did not take place before the 12th day, particularly in the pustules, which had come out more recently,

on the head, back, legs, and soles of the feet. The scabs remained on the body from five to ten days before falling off, and left behind them blains and pits in the skin. On the 12th June, (30th day of eruption,) the purple stains have not disappeared. On the 22d June, (40th day of eruption,) stains nearly gone. Pits remain. Mother unable to say where the contagion was caught.

I am not aware of any circumstance in the appearances or progress of this case that should lead me to doubt of its being a case of genuine small-pox. Unless I were to regard as such, the vesicular character of the eruption during the two first days of its existence, and the breaking out of fresh vesicles on the 4th and 7th days of the eruption, but these are symptoms which sometimes occur not only in undoubted cases of natural small-pox, but which have been so often observed in modified small-pox, that they cannot be admitted I conceive as diagnostic marks. The severity and duration of the eruptive fever in Milne—the conversion of the vesicles into pustules by the third day—the continuance of these pustules in the fluid state, many of them so late as the 12th day—the formation of scabs which remained on the body from five to ten days; and the blains and pits in the skin which were observable several weeks after the scabs had fallen off, are circumstances in the history of this case which induce me to believe, that you will not be very ready to admit the disease in

Milne to have been chicken-pox, either of a vesicular or pustular form.

From Milne's case, fourteen others sprung out; three in the same tenement with itself, and eleven in the adjoining tenement, No. 23. The children who became affected with the disease, had all, with the exception of one, passed through regular cow-pock inoculation. The varioloid eruptions in the vaccinated in this corner, were certainly more uniformly vesicular during the first two or three days of their existence, than I have usually had an opportunity to see in an equal number of cases of modified small-pox in a situation so limited; while again, in becoming pustular, in scabbing, and in producing blains and pits of the skin, the disease was in several individuals more severe, and of longer duration, than in the ordinary run of cases which I have seen of modified small-pox. In by far the greater part of the cases in Jamaica Street, the eruption appeared to me to be of the kind which I have denominated vesiculo-pustular, and which is, I conceive, the form of the varioloid disease that has usually been termed pustular chicken-pox. I leave you to judge, from the relation of the cases, what dependance can be placed upon want of fever, uniformity in the appearances, and progress of the eruption, or upon the duration of the disease in these children, as distinguishing marks sufficiently precise between the eruption with which they were affected, and the greatly

diversified forms of natural and modified small-pox. The uniformity of appearance which we would be led to expect in cases supposed to be chicken-pox, from the definitions and descriptions usually given of this disease, exists chiefly, if not solely, I suspect, in these definitions and descriptions, particularly in that kind of description which we so often meet with in medical writings, and which consists merely in generalizing the phenomena of an individual case. Mr. Bryce has made no mention of the duration either of the whole or of the different stages of the disease, which he considers as the chicken-pox of Dr. Heberden. Is this a point which has not as yet been ascertained? or is this another circumstance, besides not being communicable by inoculation, in which the chicken-pox of Mr. Bryce differs remarkably from the disease described by Dr. Heberden? You will not fail to perceive, however, that the varioloid disease in several of the children in Jamaica Street, occupied a period two or three times as long as the disease occupies, which I have termed mild vesicular small-pox, and which I believe has usually been considered as the vesicular chicken-pox.

JOHN GILLESPIE, ætat. 5 months, was vaccinated on the 11th May, and a fortnight after, without much previous sickness, a papular eruption came out, which on the third day became vesicular. Some of the larger vesicles became pustular on the 6th day, and scabbed about the 8th. Many of the scabs in this case did not fall off before the 20th day.

JAMES GILLESPIE, ætat. $2\frac{1}{2}$ years, vaccinated. About the beginning of June was attacked with slight indisposition, speedily followed by a papular eruption, which on the 2d day of its appearance became vesicular. Two or three of the vesicles in their progress became pustular, while the rest of the eruption scabbed on the 5th day. The scabs formed by the pustules did not fall off before the 14th day.

WILLIAM PHILIPS, ætat. $3\frac{1}{2}$, vaccinated. About the end of May, after some degree of fever, a roseolous rash came out, that in about two days was succeeded by a papular eruption, which in the course of two days became vesicular. Some of the vesicles in their progress became pustular, and did not scab till the 8th day, while the rest of the eruption dried much sooner. The scabs of the pustules did not fall off before the third week, and have left behind them pits in the skin.

JEAN M'RAE, ætat. 6 months. Was vaccinated on the 4th May. On Wednesday the 2d June, after slight febrile symptoms, a papular eruption was discovered on her body, which in the course of twenty-four hours became vesicular, and in the space of about four days pustular; during this period there was a considerable accession of fever. The regular progress of the eruption on the face was somewhat disturbed by the child scratching it; but by the 7th day, horny scabs had formed there, as well as on other parts of the body, while at the same time, some of the pustules on the abdomen and legs continued to be filled with a well concocted purulent fluid. A considerable number of the scabs fell off by the 11th day, leaving behind them blains and depressions of the cutis; the remainder did not separate till after a later period.

JOHN M'RAE, ætat. 3 years, vaccinated. Succeeding on the third day to a roseolous rash, without any very evident symptoms of fever, a purely vesicular eruption made its appearance on Friday 18th June, which occupied chiefly the

face, back, breast, and abdomen ; few appearing on the extremities. On the 3d and 4th days of the eruption, there was a considerable accession of fever, accompanied with swelling of the face, and œdema of the right upper eyelid, producing blindness of that eye. By the 6th day of the eruption, the lymph in the greater number of the vesicles acquired a purulent appearance. By the 7th day, some of the pustules which had either been accidentally irritated, or from which lymph or pus had been taken, were covered with a yellowish crust, while those which had been allowed to remain untouched, were covered with horny scabs of a firm consistence and dark-brown colour. On the 8th day, a few small pustules came out on the arms. By the 12th day, the greater number of the pustules on the back had passed into the state of scabs—the contents of a few of them, however, still remained fluid. On the 16th day of the eruption there were to be seen on the back, blains, tubercular elevations, pits and scabs, some of which last remained even so late as the 23d day. Blains of a reddish colour with numerous pits, were distinctly visible on this child's body on the *forty-second* day of the eruption.

It is impossible, I conceive, to read the history of this last case, and not to perceive, that in its symptoms, in its progress, and in its duration, it bore a much stronger resemblance to a protracted case of small-pox, than to any description which has ever been given of chicken-pox. The fever which occurred in the progress of the eruption—the pustular character of the eruption itself—the length of time which elapsed before the process of scabbing was completed—the duration of the scabs—the tubercular elevations, blains and pits, which

in falling off they left behind them, all indicated, in my opinion, the variolous origin of a disease which might have assumed a very different character, had it not been modified by vaccination. If cases such as John M'Rae's are to be regarded as chicken-pox, it may surely be doubted, whether the characters have yet been discovered by which chicken-pox are to be distinguished from modified small-pox.

PHILIDEPHIA M'RAE, ætat. 6 years, vaccinated. On Sunday the 13th June, was attacked with symptoms of fever: such as headache, heat of surface, restlessness, loss of appetite, and thirst. These symptoms continued for three days, when she complained of slight sore throat, accompanied with external swelling and difficulty of deglutition; and, on Saturday the 19th, a purely vesicular eruption made its appearance, interspersed with a roseolous rash. The vesicles became pustular in the course of two days, and by the end of the ninth day, the whole of the eruption had scabbed, and the most of the scabs had fallen off. The roseolous rash faded with the eruption. The affection of the throat disappeared about the 5th day after its commencement.

ISABELLA M'RAE, ætat. 7 months, twin sister of Jean, vaccinated. After little if any previous fever, a vesicular eruption came out on Monday, 19th July, which became pustular between the 3d and 4th day. Scabs began to form on the 6th day, many of which did not fall off till the 18th day—and they have left behind them blains and depressions in the skin.

JOHN BLACK, ætat. $2\frac{1}{4}$ years, vaccinated. After a few days' slight indisposition, a vesicular eruption made its ap-

pearance, which dried into scales in about two days; the scales fell off about the ninth day. During the progress of the eruption, two of the vesicles became pustular, and formed small scabs on their tops about the 7th day—these two scabs did not fall off till between the second and third week, and have left pits in the skin. A few vesicles came out on the second day of the eruption; but it was two of the vesicles which had come out on the first day that became pustular.

ANN REID, ætat. $2\frac{1}{2}$ years, vaccinated. After two days' fever, a purely vesicular eruption made its appearance on Monday the 20th of June. During the course of the night, she had scratched the tops of the whole of the vesicles, which formed into yellowish crusts, leaving a few blains and superficial pits. The eruption did not occupy a period above eight days from its commencement to its termination.

JEAN REID, ætat. 2 weeks, unvaccinated. After two days' previous indisposition, and preceded by a dark roseolous rash, a purely vesicular eruption came out. During the progress of the eruption, some of the papula on the face and arms showed a tendency to become pustular without having been vesicular, but these died away about the same time as the vesicles, which took place about the fifth day.

CHRISTIAN DOUGLAS, vaccinated. After two days' fever, and preceded by a roseolous rash of two days' standing, a purely vesicular eruption came out. Some of the vesicles became pustular, while others, without becoming so, began to scab on the 7th, and fell off by the 14th day, leaving behind them blains and pits on different parts of the body.

JAMES DOUGLAS, vaccinated. After the same precursory symptoms, as in his sister, an eruption in every respect similar to hers came out, and ran the same course. The disease in this child did not occupy a period of above ten days from first to last.

MARY TAYLOR, ætat. 20 months, vaccinated. On Monday, 28th June, was seized with febrile symptoms; and on Tuesday 29th, a bright roseolous rash made its appearance, extending all over the body; upon the fading of which, a circumscribed erythematous redness was perceived behind the angle of the lower jaw, speedily followed by the appearance of an irregularly shaped pellucid vesicle, and accompanied with considerable swelling of the parts under it. Another vesicle of similar appearance was perceptible about the same time on the back of the left hand.—July 3d, (3d day of eruption.) About half a dozen more vesicles have come out on the back of the neck. The vesicle on the back of the hand has become pustular—that on the neck continues pellucid, but has somewhat subsided.—(4th day.) Fresh vesicles have appeared on the breast, some of them surrounded with areolæ of a bright red colour.—(5th day.) The eruption has extended over the whole body except the face and feet; the swelling of the neck has greatly subsided. The vesicle on its surface is now crusted, and has a whitish fluid under the crust. Several of the vesicles on the breast have small scabs on their tops. Some pustules with hard bases, and containing a purulent fluid are to be seen on the back and belly, whilst the greatest part of the eruption is still vesicular. Face swelled, having the appearance as if stung by a bee, and one eye closed up.—(6th day.) Eruption much the same. A few vesicles have come out round the chin and sides of the face, surrounded with areolæ. Some on the tongue, and a few on the feet.—(7th day.) Fresh vesicles have appeared on different parts of the body. Many of those which appeared first have scabbed, and most of them are surrounded by severe inflammation of the skin and subcutaneous texture, giving an appearance not unlike the cowpock with its areolæ. On several parts of the body the eruption is still vesicular. Child suffers much from itching and pain; and where it has scratched off some of the pus-

tules, deep and angry looking sores are left in the skin.—(8th day.) Fresh vesicles are making their appearance—the areolæ have much increased in extent, and feel hard upon pressure. Towards the evening of this day, the febrile symptoms, which had continued unabated throughout the course of the disease, began to decline, and she seemed livelier than formerly.—(9th day.) Passed a better night. Continues free of fever—towards evening the fever returned with increased violence, and with great thirst.—July 10th. (10th day.) Fever continues unabated—passed a restless night. Eruption continues much the same as on the 8th day. Fresh vesicles have come out on different parts of the body. The areolæ have now assumed somewhat of a dusky colour.—(11th day.) Constitutional symptoms nearly as yesterday. Some of the vesicles have faded, others are formed into dark brown coloured scabs, depressed in the centre, and still surrounded by areolæ, while others begin to be filled with a purulent fluid.—(12th day.) Appearances much the same as yesterday. Several distinct pustules are to be seen on the breast, unsurrounded by areolæ.—(13th day.) The areolæ surrounding the pustules on the feet have assumed a purplish colour. The rest of the eruption stationary. Deglutition continues free and easy.—(14th day.) Last night seemed somewhat relieved, but towards morning the fever returned, accompanied with a puffy swelling of the face, hands, and feet, difficult respiration, and great quickness and feebleness of pulse. Died at 10 o'clock in the evening.

I watched the progress of the disease in this unfortunate case daily, from its commencement to the fatal termination, and never for a moment had a doubt of its being a well-marked, and in many of its symptoms a severe case of modified small-

pox. The roseolous rash by which the vesicular eruption was ushered in, did not appear to me to differ in any respect from the same rash in eight of the other fourteen children in whom it occurred ; and its sudden disappearance in them all, without its seeming to leave a single injurious consequence behind it, never once permitted me to suspect that the roseolous rash, either in Taylor or in any of the other children, could possibly have arisen from the contagion of scarlatina. Vesicles appeared about the 6th day, on the tongue ; and though I think it probable they may have occurred also on the palate and tonsils, the deglutition, I know, was never in the slightest degree impeded from the first to the last day of the disease : But impeded deglutition, with a foul gangrenous and sloughing state of the fauces, are the symptoms I should have expected to have found, had the affection of the throat proceeded from scarlatina, or been either immediately or remotely the cause of death in this infant. I have been thus particular in stating my reasons for believing the rash in Taylor to have been roseola, not scarlatina ; and though convinced every day more and more of the wonderful power of vaccination in mitigating the severity of small-pox, I cannot but consider this case as affording an example of death from small-pox, in one who, there is every reason to believe, had gone through vaccination in a regular manner. What the peculiarity of constitution was, which

gave rise to the erythematous inflammation that surrounded some, but not all of the vesicles and pustules in this child, I am unable to say, but I have repeatedly had occasion to observe a similar malignant tendency, though in a less degree, in the inflamed areolæ surrounding the eruption of modified small-pox in other children. Can the eruption in Taylor have been of the kind described by Dr. Helvetius of Paris, under the name of the distinct malignant; and by Dr. Rogers of Cork, under that of the distinct lymphatic small-pox? The roseolous rash in Taylor was as mild as in any of the other eight children who in this corner were affected with it; and every symptom of it had disappeared before the varioloid eruption commenced. I am satisfied that the supposition of the roseolous rash having been scarlatina, was only had recourse to at a very late period of the varioloid disease; and that it never would have been had recourse to had this case terminated favourably.

The next cases to which Dr. Alison refers as exhibiting appearances different from those of modified small-pox, occurred in the Grassmarket; a situation where there is a constant influx and efflux of the lower orders of society, and among whom the varioloid disease has prevailed more or less uninterruptedly since the month of June 1818. A large proportion of the children in this district being unvaccinated, the disease has appeared very frequently in a pustular and malignant form in

this class, while during the same period it has exhibited, in the vaccinated, all that diversity of appearance which I have described as occurring in modified small-pox. I know that in this district, as well as in every other part of Edinburgh, in which the mild vesicular disease has occurred in the vaccinated, it has been termed chicken-pox; I mention this circumstance to show you the continued co-existence of the vesicular and of the pustular forms of the varioloid disease in the Grass-market during the whole progress of the present epidemic.

The following short histories of the cases to which Dr. Alison refers, agree perfectly with his account of them; but you will perceive that in these cases the disease differed remarkably in the mildest of its symptoms, as well as in the shortness of its duration, from several of those which occurred in Jamaica Street. I saw the two last cases only in their progress, and was unable to perceive in the appearances of the disease with which these children were affected, any differences between it and mild cases of modified small-pox.

ANN HAMILTON, ætat. 3 years. Was vaccinated on Friday the 16th July. Had not been taking her food so well for two days previous; during the night of the 16th, she became fretful with heat of skin and thirst, and on the day following (Saturday) a vesicular eruption came out; the vesicles resembled small burns with hard inflamed bases. Some of them became pustular, and the eruptions

in general began to scab on the 4th day. The vesicles bore a striking resemblance in the appearances which they exhibited to those of cow-pock. The vesicles which became pustular did not begin to scab before the 7th day; the scabs remained for 8 days after their formation; and left behind them blains on the skin.

HELEN HAMILTON, ætat. 4 months. In a few days after having passed through regular vaccination, a papular eruption came out, preceded by little if any eruptive fever. The papulæ were numerous, but few of them became either vesicular or pustular; they had almost entirely dried up by the 4th day into thin scales, the greater number of which have now, 9th day, fallen off, leaving blains and a few pits in the skin.

JAMES HAMILTON, ætat. 5 years, vaccinated. After a few days slight indisposition, which did not confine him to bed, there appeared on Saturday the 31st July a vesicular eruption, with red, hard, elevated bases, which disappeared about the 5th or 6th day, without becoming pustular. The vesicles formed into small horny scabs, some of which at present, 9th day, remain upon his back.

In the floor below where these children lived, I found two other children (consins) affected with the varioloid disease—one from the neighbouring close, vaccinated, and the other unvaccinated. In the unvaccinated child the disease was strictly vesicular, and of shorter duration than in any of the Hamilton's, while in the vaccinated child it exhibited the usual appearances of the vesiculo-pustular eruption, or of modified small-pox.

ISABELLA ROSS, ætat. 6 years, vaccinated. After two days severe fever, an eruption of small vesicles came out,

which, to use the mother's expression, had the appearance of little blisters produced by bits of live coal that had fallen upon the skin. The eruption began to dry into thin scales by the 4th day ; the greater number of which fell off by the 6th day, leaving slight blains and superficial depressions in the skin.

ALEXANDER ROSS, ætat. 22 months, vaccinated. Was seized about 10 days after his sister with febrile symptoms, which continued for 3 days, when a vesicular eruption came out, which became pustular on the 6th day. Some of the pustules began to form into scabs by the 7th day ; but in the greater number this process did not commence till the day following. Many of the scabs remained on the body for 10 days after their formation, and left behind them small pits on the abdomen, and several large deep ones on the back.

ROBERT M'KAY, ætat. 6 months, unvaccinated. After two days severe fever, a purely vesicular eruption, resembling small burns, made its appearance—most numerous on the breast and arms. The eruption by the 4th day dried into small thin scales, most of which had come away by the end of the sixth day.

It was my conviction that the vesicular disease in the infant M'Kay, and the vesiculo-pustular eruption in Alexander Ross, had both proceeded from the vesicular eruption in Isabella Ross, as from their relationship, and their often meeting in their grandmother's, where I found them, they had had repeated intercourse with one another.

The cases I imagine to which Dr. Alison refers as having seen in the Horse Wynd, occurred in a house at the head of Laidlaw's Close in M'Lauch-

lin's land.* I visited at different times in that land four children affected with the varioloid disease, three of them vaccinated, and one unvaccinated. From the appearance of the disease in these children when I first saw them, I could have no doubt of its being small-pox; and the less so that I had a short time before, and even at that very time, had my attention strongly drawn to several cases of natural, as well as modified small-pox, of a very severe kind, in different parts of the Cowgate, the street into which this close opens.

The following are the histories of the cases which occurred in M'Lauchlin's land.

ROSE RUSSEL, ætat 3 years, vaccinated. About the middle of June last, was seized with slight febrile symptoms, which continued for three days, when a vesicular eruption made its appearance. This eruption on the 7th day became slightly purulent, and began to scab on the day following. The scabs did not fall off till about eight days after their first formation, and have left behind them pits on different parts of the body.

ALEXANDER CAMPBELL, ætat 6 years, vaccinated. About eight days after the appearance of the eruption in Rose Russel, was seized with severe fever that continued for four days, when a purely vesicular eruption came out, which ran the same course, scabbed about the same time as in that girl, and left similar pits in the skin.

ARCHIBALD HASTIE, ætat 14 months, unvaccinated. After three days severe fever, a papular eruption came out, which, in the course of six days became pustular; fresh

* A building including different houses.

papulæ continued to come out till the 4th day of the eruption, and remained so about two days before becoming pustular. By the 11th day the whole of the pustules had formed into scabs. The scabs remained for at least eight days after their first formation before falling off, and left behind blains and numerous pits on different parts of the body.

I cannot say whether the mild vesicular eruptions occurred in any of the other children in this close ; but from the circumstances of the cases I have detailed, I think you must already have perceived, that even had these occurred, they ought not, in any degree, to have changed the opinion I had formed with regard to the truly variolous nature of the disease in the children who were the subjects of my observation ; and I am convinced Dr. Alison will be of my opinion also, when he learns the particulars of a case, attended by Dr. Tweedie, which seems to have escaped his observation, as it certainly did mine ; the case to which I allude was the third that occurred in the order of infection in this land, and of which the following is a brief but correct outline.

MRS. CAMPBELL, ætat 40, (who had neither had small-pox nor cow-pock, with whom Rose Russel had slept during her illness, and who laboured at the time under fever from pneumonia,) in about fourteen days after the appearance of the eruption in Russel, observed all over the surface of her own body a papular eruption, which soon afterwards became pustular. These pustules, which had small depressed spots in their centres, gradually filled with a purulent fluid,

and began to scab about the 10th day. Many of the scabs did not fall off till between ten and fourteen days after their first formation; and they have left behind them blains and numerous pits on different parts of the body.

You will not surely require of me to adduce any other evidence of the existence of small-pox, both in their modified and unmodified forms, in the Horse Wynd, besides that to be found in the histories of the four cases I have now detailed.

Dr. Alison allows that he has seen several cases in which an eruption certainly proceeding from the infection of small-pox, was formed into crusts within five days, in unvaccinated persons; and refers to a case of this kind which occurred in Blackfriar's Wynd, and which I have reason to believe he saw for the first time on the third day. I saw this case on the evening of the day on which the eruption first appeared; and after a careful examination, I mentioned to Mr. McIntosh, who carried me to see this case, that I considered it to be one of the purest examples I had ever seen of the vesicular disease, either in a vaccinated or in an unvaccinated child. The eruption, as will be seen by the history of the case, ran exactly the course of the mildest variety of chicken-pox. I had an opportunity of contrasting it daily with a varioloid eruption in another infant, Hugh Doughy, in the adjoining room, which was from two to three days vesicular; but which became afterwards pustular,

and exhibited in its progress the appearances of distinct small-pox.

JAMES CAIRNS, ætat 2 years, unvaccinated. On the 29th of May was seized with febrile symptoms, which continued pretty severe till the 2d June, when a papular eruption appeared, which in the space of two days became pustular. The pustules continued to increase in size till the 6th day, when they became stationary. On the 8th day he became somewhat uneasy and restless, and continued so for two days, when all febrile symptoms left him. On the 9th day the pustules began to scab, and by the 12th the whole of them had blackened, excepting those on the hands and feet, which scabbed on the two following days. On the 25th day of the eruption, his body was studded all over with tubercular elevations and blains.

ANN CAIRNS, ætat 6 months, unvaccinated. After a very slight previous indisposition, a purely vesicular eruption was discovered on different parts of her body on Monday 21st June, (nineteen days after the appearance of the eruption in James.) This eruption continued vesicular throughout the course of the disease. By the 4th day several of the vesicles had fallen, and were almost completely faded; and by the 5th day, the whole of the eruption had entirely disappeared, leaving only superficial cutaneous discolorations, except four or five vesicles on the right hand and arm, that formed into extremely small horny scabs, which in the course of three days fell off, exposing very slight tubercular elevations of the cutis.

FRANCIS DOUGHY, ætat 6 years, unvaccinated. Fell sick on the same day as James Cairns, and continued so for three days, when an eruption, in every respect similar to that in James Cairns, made its appearance, and ran precisely the same course with it. On the 27th day of the eruption there were visible, on different parts of this boy's

body, tubercular elevations, which were equally numerous, though somewhat less prominent than in James Cairns.

HUGH DOUGHY, ætat 7 months, unvaccinated. After two days previous indisposition, a papular eruption made its appearance on Saturday 19th June; which, on the night of the 21st became vesicular, and continued so till the 24th, when the vesicles became pustular, and increased in size. On the 8th day, a few of the pustules began to scab; and on the 9th many of them had small scabs on their centres, while others remained perfectly entire and distended with a purulent fluid. The eruption in this case ran the course usually observed in natural distinct small-pox; the scabs remained for several days after their formation; and on falling off, exposed tubercular elevations and blains of the skin.

The history of Anne Cairns's case affords, I conceive, a fair example of the disease which I have described under the name of mild vesicular small-pox; and if differences so great as those which manifested themselves in the appearances and progress of the respective eruptions in this infant, and her brother James, are allowed to have proceeded from the infection of the same contagion, who would pretend to mark out points of difference sufficiently precise between the mild vesicular small-pox, and the eruption which has usually been termed chicken-pox? Can it be imagined that the small-pox would have been rendered milder, or that any change would have been produced upon their appearance in this infant by vaccination? Or is there to be found in the records of medicine, or in the descriptions given of indivi-

dual cases of the varioloid disease, an example of a case answering in every respect more exactly to the definitions which have been given, and to the notions that have been generally entertained of chicken-pox? I must beg you to compare the history of Anne Cairns's case with that of John M'Rae in particular, which, with the other cases of the varioloid disease that occurred in Jamaica Street, Mr. Bryce and Dr. Alison would endeavour to persuade us did not arise from the contagion of small-pox. Indeed, if small-pox were always to show themselves in the precise form, and to run through the same course which I saw them do in Anne Cairns's; and were chicken pox always to assume the forms, and produce the effects which the varioloid disease did in several of the cases in Jamaica Street, I should myself be inclined to adopt the opinion, that there must be a specific difference between the contagions of small-pox and of chicken-pox.

I had just concluded the preceding detail of cases, when I was favoured with the following letter from Dr. Abercrombie:

“ York Place, 24th August, 1819.

“ DEAR SIR,

“ I have to return you many thanks for your interesting communication on the subject of small-pox, and beg leave to apologise for not having sooner replied to the queries which are subjoined to it. The subject is highly important, and the

medical profession is under great obligations to you for the pains you have bestowed on the investigation. Without intruding upon you any tedious detail of particular cases, I shall state, in as few words as possible, the result of my inquiries, and the opinion which observation of some extent has led me to form on this interesting subject.

“I have long observed two eruptive diseases, which differ remarkably in their characters from regular small-pox.

“I. The first is that which has usually been called varicella or chicken-pox. This eruption is preceded for a day or two by fever, generally slight. When a single specimen of the eruption is minutely examined, it is found to be from the earliest period a watery vesicle, covered by a thin pellicle of skin, which usually has a loose shrivelled appearance. The vesicles increase in size for three or four days, and then generally burst; the fluid drying into loose scaly crusts, of a light yellowish colour. In some constitutions, and on some parts of the body where the cuticle is unusually strong, the vesicles may continue unbroken for a longer period, perhaps to the 6th or 7th day, and in these cases they assume a yellow puriform appearance, considerably resembling the pustules of small-pox. If one of the vesicles of this eruption be punctured on the 2d or 3d day, so as carefully to discharge all the fluid, the pellicle which covered it falls down, and the finger being then carried

over it, it is found to be correctly on a level with the surrounding integuments.

“II. The second is the eruption which has usually been called horn-pox, and which, though it has been very generally confounded with the former, appears to differ from it remarkably in its characters. It is preceded by fever, sometimes severe. The eruption appears in the form of small inflamed papulæ, which in the course of three days begin to assume a vesicular appearance. They increase to the 4th or 5th day, and then die away into clear horny crusts of a regular figure, and a brown colour, each of which is elevated upon a solid tubercular base. A few of them sometimes stand out for a longer period, and advance to a partial or complete suppuration. If one of the vesicles be opened on the 3d day, so as carefully to discharge all the fluid which it contains, and the finger then be carried over it, there is found remaining a firm tubercular base, considerably elevated above the surrounding integuments.

“These two eruptions have been frequently confounded with each other, and have been described indiscriminately under the name of chicken-pox. Late researches, particularly those of Mr. Bryce and Dr. Hennen, have now established the important fact, that the second is really a variolous disease, checked in its progress by a constitutional protection, but capable of producing, by contagion or inoculation, in those not protected, perfect small-

pox. What is the nature of the other eruption, usually called varicella, is the interesting subject of your zealous investigations. Is it also a variolous disease? or is it an affection, distinct in its characters, and different in its nature, from every modification of small-pox?

“This eruption certainly differs remarkably from those affections which we have hitherto considered as variolous. The distinguishing characters of it, I conceive to be, its assuming from the first a purely vesicular appearance, and the vesicles, when punctured, at an early period falling completely to the level of the surrounding integuments. The eruption of small-pox, on the other hand, is, in all its modifications, at first a solid tumour; at a certain period, fluid begins to form in it; but if this fluid be discharged about the 3d day, there is found beneath it a firm tubercle, the remains of a tumour which is gradually passing into suppuration. In modified small-pox, this tubercle remains for some time after the formation of the crust, the disease having been arrested in its progress. In regular small-pox, it speedily disappears by the complete suppuration of the pustule: it is consequently not met with in those cases at the more advanced periods, and if the progress of the affection has not been attended to, there may then be some difficulty in distinguishing betwixt the pustule of mild small-pox, and those cases of varicella, in which the vesicles have remained un-

broken to the 6th or 7th day, and have consequently assumed an opaque pariform appearance. But notwithstanding this apparent similarity, attention to the history of the two affections distinctly indicates the difference in their characters, the one being a vesicle in which the fluid has gradually become opaque, the other a phlegmonous tumour which has passed into suppuration. In the horn-pock, or modified small-pox, again, the eruption dies away into crusts about the same period which is observed by varicella, but the crusts in the latter are yellowish, scaly and irregular, and lie flat upon the surface of the body, while those of the former are brown, compact, and defined, of a clear horny smoothness, and each elevated above the surface of the body upon a firm tubercular base.

“These circumstances indicate a remarkable difference in their *characters*, betwixt the vesicular disease of Mr. Bryce, and those affections which we have hitherto considered as modifications of small-pox; but they do not necessarily prove them to be distinct diseases. The following observations seem to me to bear directly upon this part of the subject.

“1st, I state with confidence, that I have often seen small-pox epidemic, without having observed mixed with the cases of it any examples of the vesicular disease of Mr. Bryce; nor have I ever been able to trace an example of the latter, to the contagion of small-pox, (always keeping in mind

the important distinction betwixt this vesicular disease, and the horn-pock or modified small-pox, which has been very generally confounded with it.)

“*2d*, I state with equal confidence, that I have seen the vesicular disease epidemic, without observing among the cases of it any example that had the characters of small-pox. Nor have I ever been able to trace a case that in its characters resembled small-pox, to the contagion of the vesicular disease.

“*3d*, I have seen the vesicular disease in its progress affecting those who had had small-pox—those who had been vaccinated, and those who were completely unprotected; and in all these cases it exhibited the same characters, in none approaching to the characters of small-pox. In one family very lately, I observed it affect in succession two children who had been vaccinated, and an infant a fortnight old who had not, and I could not detect in the three cases the slightest difference in the characters of the disease.

“*4th*, In the infant now alluded to, vaccination, which was practised a short time after, went through its course in the most regular manner; and this important circumstance has been observed in Edinburgh in some other instances. I never saw vaccination advance regularly in a person who had been affected with small-pox.

“*5th*, In no case that has come to my knowledge has the vesicular disease been communicated

by inoculation, though it has now been tried in Edinburgh in a great number of instances.

“6th, The occurrence of small-pox does not prevent or modify the vesicular disease, and the vesicular disease does not prevent or modify small-pox.

“7th, Vaccination does not prevent or modify the vesicular disease.

“These circumstances appear to me to give the highest degree of probability to the opinion, that the two affections are essentially different, and to afford all the evidence in support of this doctrine that we can reasonably look for in a case of this kind. I say *in a case of this kind*; because, when two diseases are so similar in their prominent symptoms as such cutaneous affections, seated nearly in the same structure, necessarily are, there is a difficulty in the investigation, which can only be overcome by the most enlarged view of the whole phenomena of the two diseases, and can never be removed by the most minute examination of the cutaneous symptoms. On this ground, I should not consider the question as materially affected, though, in a case of small-pox, we were to observe a few vesicles having the characters of varicella. Such deviations we observe in other cutaneous affections, without for a moment supposing that they are to influence our view of the nature of the disease. In a case of scarlatina, for example, we may observe patches of the eruption

which have in a great degree the character of measles ; and, in measles, we may find portions that resemble scarlatina. Strophulus, again, may assume the appearance of measles, and roseola may simulate the characters of all the three. Other examples of this kind might easily be found among the cutaneous diseases, and I do consider it as a circumstance of essential importance in this inquiry.

“ I am aware that, in a part of the description which I have given in this paper, there is an apparent difference betwixt the vesicular eruption of Mr. Bryce and the varicella of Dr. Heberden. I allude to the circumstance, that Heberden seems to have considered varicella as capable of being communicated by inoculation, though he does not refer to any case in which this actually took place. Now, on this point, there was an obvious source of fallacy in the researches of Dr. Heberden ; for he does not seem to have been acquainted with the most important distinction betwixt the vesicular eruption and horn-pock, or modified small-pox, but to have included both, without discrimination, under the term varicella. Had he therefore inoculated for horn-pock, the inoculation would certainly have taken effect, producing, however, small-pox, not varicella ; but had the small-pox been extremely mild, as by inoculation it might very probably be, it is very easy to see how Dr. Heberden might suppose that he had inoculated varicella.

Upon the whole, I must acknowledge myself satisfied with the commonly received opinion in regard to variola and varicella; and, taking into view the whole phenomena of the two diseases, I can see nothing calculated to establish the doctrine that they proceed from the same contagion. I am, dear Sir,

“ Yours sincerely,

“ JOHN ABERCROMBIE.

“ *To Dr. Thomson,
George's Street.*”

The very distinct manner in which Dr. Abercrombie expresses his belief in the specific difference between chicken-pox and small-pox, his explicit avowal of his not being able to see any thing in the whole phenomena of the two diseases calculated to establish the doctrine that they proceed from the same contagion, and the scientific form which he has given to the results of his experience, by stating these results in separate propositions, appear to me to bring the different points at issue respecting chicken-pox so clearly into view, as not to leave any room for doubt or mistake concerning them, and to render it in some measure necessary for me to enter again into the consideration of this subject.

You must already have perceived, from the histories of the cases I have detailed, that I have not found the form of the varioloid disease con-

sidered by Mr. Bryce as chicken-pox, and by Dr. Alison as a disease different from modified small-pox, to be so invariably uniform in its appearances and progress as the general descriptions which have been given of this eruption, would have led me to expect; and this circumstance has naturally tended to weaken the confidence I might otherwise have been disposed to place in the certainty of the diagnostic characters by which Dr. Abercrombie has attempted to distinguish between chicken-pox and modified small-pox.

I have described one variety of the varioloid epidemic under the name of the mild vesicular eruption, and another under that of the vesiculopustular eruption, forms of the disease which I have observed occurring in the vaccinated and unvaccinated, as well as in those who had previously passed through natural small-pox. But you must not imagine, that in making this distinction, I have in every case seen these eruptions exactly as they appear in my general description, for the vesicular eruption has often passed, in individual instances, so insensibly, and in such various degrees into the pustular, that I doubt much whether it be possible to establish any thing like precise and definite boundaries between these, or indeed between any of the other forms of varioloid diseases.

By the reference, however, which Mr. Bryce and Dr. Alison have made to individual cases, I

have a perfect assurance that a great part of the eruptions which they have considered as chicken-pox, are the eruptions occurring in the vaccinated, which I have described under the name of the vesiculo-pustular small-pox. But in what respects this form of the varioloid disease agrees with or differs from the disease which Dr. Abercrombie denominates horn-pox, or modified small-pox, I have yet to learn ; for if the description which I have given of the vesiculo-pustular form of the varioloid disease does not include that which he considers as horn-pox, I have reason to doubt whether I have yet seen a case of modified small-pox.

I do not find, in the description of chicken-pox, as given by Dr. Abercrombie, any characters additional to those which have been attributed to that form of the varioloid disease by Mr. Bryce and Dr. Alison ; so that the differences which I have stated from p. 78 to 85, as existing between the results of Mr. Bryce's observation and mine, are equally applicable, I conceive, to Dr. Abercrombie's description of chicken-pox, and need not therefore be repeated.

But how variable the phenomena of the varioloid disease have been, must appear obvious, when you compare the descriptions which have been severally given of chicken-pox by Mr. Bryce, Dr. Alison, and Dr. Abercrombie, with one another, and with the original description given by Dr. Heberden of

chicken-pox, as a disease specifically different from small-pox. The points of difference to which I would wish more particularly to direct your attention, are, *1st*, The vesicles being preceded, or not preceded, by papulæ. *2d*, The occurrence, degree, and duration, of the eruptive fever. *3d*, The period at which the vesicles are stated first to appear, to shrivel, and to burst. *4th*, The fact whether the vesicles ever become pustular. *5th*, Whether, in becoming pustular, it be possible to distinguish them from modified small-pox on the one hand, or from natural small-pox on the other. *6th*, How long the pustules may continue fluid without scabbing. *7th*, How long the scabs which form may remain without falling off. *8th*, Whether, in falling off, they leave behind them blains, tubercular elevations, or pits in the skin. You will be surprised, on inquiry, to find how little the information is we yet possess respecting the points stated in the queries Nos. 6, 7, and 8. The chicken-pox of nosologists have usually been represented as a disease, running its course in the space of one week, while you will perceive that some of the cases supposed to be chicken-pox occurring in vaccinated children in the present epidemic, have not completed their course in three or even more weeks.

With regard to the horn-pox, the second eruption which Dr. Abercrombie mentions, and which he considers as the same with modified small-pox, I have to regret that I have not had an opportunity

of seeing with him any examples of this form of the varioloid disease, because the results of my observation with regard to modified small-pox differ in many particulars so widely from his account of horn-pox, that there seems to me reason for doubting whether we indeed give the same appellation to the same form of the varioloid disease. The most common form in which modified small-pox have appeared to me to occur, is that to which I have given the name of the vesiculo-pustular eruption. I do not know whether Dr. Abercrombie will admit my description of this form to be applicable to that which he has denominated the horn-pox, but I know that the vesiculo-pustular eruption followed by horny scabs and tubercular elevations of the skin, is a form of the varioloid disease which I have seen occur in primary, in secondary, and in modified small-pox, as well as in the eruptions which have been considered as chicken-pox by Mr. Bryce and by Dr. Alison. If by horn-pox we are to understand that form of the varioloid disease in which the contents of the vesicles and pustules are converted into brown-coloured semi-transparent horn-like scabs, which in falling off usually leave behind them slight temporary elevations of the skin in the spots which they occupied, then I am prepared to state, that in the course of the present epidemic, horn-pox have occurred to my observation much more frequently in natural small-pox than in small-pox modified by vaccina-

tion, and therefore that I cannot by any means admit the horny character of the scabs in varioloid diseases as affording any diagnostic mark either between modified small-pox and chicken-pox, or between modified small-pox and natural small-pox.

The only points of difference between chicken-pox and horn-pox which I have been able to discover in the description of Dr. Abercrombie, are, 1st, That the eruption in the chicken-pox is from the earliest period a distinct vesicle ; whereas, in horn-pox, the eruption appears first in the form of inflamed papulæ ; and, 2d, That when the contents of the vesicles in chicken-pox are let out, the parts of the skin which they covered are found to be correctly on a level with the surrounding integuments, while the same parts in the horn-pox are each elevated above the surface of the skin upon a firm tubercular basis. But these are marks of distinction which my observation of the present varioloid epidemic has led me to distrust, for I have not found that vesicles have appeared without being preceded by papulæ of longer or shorter duration, and I have seen the tubercular elevations which succeed to vesicles and pustules, occur most frequently in natural small pox, often wanting in modified small-pox, and sometimes present in eruptions considered to be those of chicken pox. Indeed, so far from finding these characters peculiar to any form of the varioloid disease, I have often

found them both co-existing in the eruption of the same individual.

The tubercular elevations which Dr. Abercrombie seems to regard as forming the diagnostic character of horn-pox, or modified small-pox, are appearances which have been described by practical observers as common occurrences in natural distinct small-pox, before, as well as since, the introduction of vaccination. By the following passage, you will perceive that Van Swieten has not only described these elevations as occurring in natural distinct small-pox, but that he has likewise anticipated the observation made in p. 23, of these tubercles sometimes becoming, in their gradual disappearance, the seats of pits or depressions of the skin. "I have often seen the pimples, in drying up and falling off, after a mild and distinct small-pox, in which they happened to be very large, leave behind them, instead of pits, red prominent tubercles, which after some weeks subsided of themselves by degrees, by which means the skin recovered its pristine smoothness. But sometimes too it happens, that such pimples, even in the same kind of small-pox, sink deeply into the substance of the skin, at the same time that they tower so much above its surface, and so leave pretty deep, though not very numerous, pits in the face, on account of the substance of the skin having been destroyed, in consequence of the great quantity of the pus they contain." This author in describing

the progress of an epidemical small-pox which occurred in the year 1735, mentions, that the disease ceased to spread in the months of May and June, and that "from that time the real small-pox entirely ceased, and gave place to a spurious kind, with us commonly called the steen-pokken, in which the pimples never suppurate, but grow hard and fall off. Many children, even at the breast, were seized with it, but it was of so gentle a sort, that they were not obliged to keep their beds, and had little or no fever." The steen-pokken being but another name for the horn-pox, we are under the necessity of believing that the varioloid epidemic alluded to by Van Swieten in this passage, was either natural small-pox, secondary small-pox, or chicken-pox. It does not seem probable that this epidemic could have consisted wholly of secondary small-pox : 1st, Because it attacked children at the breast, who are not stated to have previously passed through small-pox ; and, 2dly, Because it is impossible to conceive how the varioloid epidemic should consist solely of secondary small-pox, unless we were to suppose that the whole of the population had previously passed through natural small-pox. But if any part of the steen-pokken in this epidemic was not secondary small-pox, then it is obvious, that the tubercles from which they appear to derive their name, cannot be considered as the peculiar characteristic of secondary small-pox, and must be admitted, upon Van Swieten's

observation, to have occurred either in natural small-pox, or in chicken-pox, or in both these forms of the disease.

But that tubercles occur in natural small-pox does not rest upon Van Swieten's authority only, for Dr. Heim of Berlin, in a paper inserted in Horn's *Archives* for the year 1809, in laying down the diagnostic marks between genuine and spurious small-pox, states expressly, "that the skin which forms the basis of the pustule in spurious small-pox is never raised; while the skin which forms the basis of the pustules in genuine small-pox is often very remarkably raised; and that these elevations frequently remain even after the scabs have fallen off." From this statement it is manifest, that Dr. Heim has endeavoured to establish the same distinction between genuine small-pox and spurious small-pox, which Dr. Abercrombie has supposed to exist between modified small-pox and chicken-pox; but as Dr. Heim does not admit small-pox modified by vaccination to be in any respect different from the spurious small-pox which he had observed before the discovery of that process, it is obvious that he cannot have found tubercular elevations in these eruptions, and consequently that he, at least, cannot have fallen into the mistake into which Dr. Abercrombie supposes Dr. Heberden had fallen, of including, without discrimination, horn-pox in the same genus with chicken-pox.

Judging as I do, from my own observation of the present epidemic, horn-pox can only be regarded as one of the forms in which modified, secondary and primary small-pox sometimes appear, and it is well known to be but one form also of the many varieties of spurious small-pox which have been described by practical authors. I am inclined to believe that most, though not all of the varieties of small pox described as spurious by the older authors, were cases of secondary small-pox, but of this I have not been able to find any direct confirmation in the opinions or writings of those who have described small-pox, nor have I been able to find, in the past history of medicine, any proofs of the fact, that the second attack of the small-pox is usually milder than the first, though this fact which is anticipated in the hypothesis of Mr. Bryce appears to me to be established by the cases of secondary small-pox that have come under my observation. In attending to the appearance and progress of the 41 cases of secondary small-pox which I have seen since June last year, I have been much pleased to find not only that the eruptions in a considerable proportion of these were of the kind which have been denominated horn-pox, but also that others of these cases exhibited many of the anomalous appearances which have been recorded as characteristic of other varieties of spurious small-pox, because this has appeared to me to afford strong

additional grounds for believing that the different kinds of spurious small-pox described by practical authors were in fact cases of secondary small-pox.

We are at present acquainted with three different varieties of modified small-pox; the first has been long known, inoculated small-pox, or small-pox modified by inoculation; the second is small-pox modified by the previous infection of small-pox, whether naturally or artificially communicated; but of this modification I have not been able to find any account in practical authors, so that if any such exists, it has hitherto escaped my researches; the third variety is that which has only of late years begun to be known, small-pox modified by vaccination. But to ascertain fully in what particular respects these three kinds of modified small-pox agree with, or differ from one another, will require a continued series of observations of a nature very different from any I have been able to find upon record.

Dr. Abercrombie seems to think, that small-pox modified by previous small-pox, and small-pox modified by vaccination, are nearly the same; and, accordingly, he has given to both the name of horn-pox. This opinion, however, does not appear to be justified by the results of my observation of these two modifications of small-pox, nor calculated to promote our knowledge of this subject. Small-pox, modified by previous small-pox infection, have appeared to me to be in general

more severe than small-pox modified by vaccination, and, accordingly, the number of deaths has also been comparatively much greater; for while natural small-pox in the present epidemic have proved fatal, nearly in the proportion of 1 in 4, and secondary small-pox in the proportion of 1 in 25, small pox, after vaccination, have proved fatal in one instance only of above 330 cases which have now come under my observation. But whether these are results and proportions that will be confirmed by future observation, time only can inform us. In the meanwhile, we must be careful not to confound these two different kinds of modified small-pox in our description of these diseases, or in our medical reasonings concerning them. It is remarkable, that in two of the fatal cases of secondary small pox, the disease, in the first attack, was of the mild vesicular kind; but, as only short intervals elapsed betwixt the first and second attack, (eight weeks in the one, and about ten days in the other,) it seems to me doubtful whether we ought to regard the two eruptions as the effect of one or of two different infections. If they depended upon one infection, then it is obvious, that I must subtract two from the three deaths I have stated as having been occasioned by secondary small pox, and reduce the proportion from 1 in 25 to 1 in 75.

I am aware that the severity, and even mortality, which has been observed in the cases of

secondary small-pox occurring during the present epidemic, may be regarded as forming an objection to the opinion I have adopted of secondary small-pox having been the disease that was formerly described as chicken-pox or spurious small-pox ; and I am at present unable to answer this objection, otherwise than by supposing that the secondary and modified, as well as the primary small-pox of the present epidemic, have been of a nature unusually severe. It is well known that the mortality of variolous epidemics has, in particular years, not amounted to more than 1 in 50 ; whereas, the mortality of the present epidemic has, according to my observation, been not less than 1 in 4 of the unprotected who have been attacked by it. When a variolous epidemic shall again occur, of a milder kind, it appears to me probable, that not only the number of those who may be attacked with secondary small-pox, and with small-pox after vaccination, will be greatly diminished, but also that the disease in these two classes of persons will probably bear a stronger resemblance to the descriptions that have usually been given of chicken-pox, than the varioloid eruptions have manifested in vaccinated and variolated persons during the progress of the present epidemic ; and I have no doubt, but that in such an epidemic, also, the number of cases resembling those which have been regarded as chicken-pox occurring in the unvaccinated during the present epidemic, and

which I have described under the name of the mild vesicular small-pox, will be greatly increased. In reflecting upon this subject, it must be remembered, that varioloid eruptions have been admitted to be chicken-pox only when they were mild, and that in judging of cases suspected to be cases of secondary small-pox, it has usually been imagined by medical practitioners, that either the first or second attack must have been of a spurious nature.

Dr. Abercrombie has stated seven observations which he conceives to bear directly upon the distinction he has endeavoured to establish betwixt the vesicular disease of Mr. Bryce and modified small-pox. The greater part of these observations do not appear to me to be founded upon the present epidemic, and several of them do not agree with the results of my observation of this disease. I shall therefore offer no apology for making each of these observations the subject of a few incidental remarks.

In reference to the first observation, "I state with confidence," &c. p. 187. I may observe, that I am not aware that small-pox have been very often epidemic in this country for the last twenty years; but when they have occurred, it does not to me seem improbable that cases of small-pox, in their mild as well as in their malignant vesicular form, may have existed, which did not fall under Dr. Abercrombie's notice. The vesicular disease

of Mr. Bryce, as distinguished from the chicken-pox of Dr. Heberden, is, I have reason to believe, but a recent discovery.

2d, I should have been disposed to place greater confidence, than I now feel inclined to do, in the accuracy of Dr. Abercrombie's 2d observation, "I state, with equal confidence," &c. had he made any reference to the particular time and place in which he had seen this epidemic occur; and were I not convinced that I had myself, in the varioloid epidemic which I saw at Currie, in the year 1809, fallen into a mistake of the kind similar to that which I suspect Dr. Abercrombie has committed in this observation.

3d, In his 3d observation, Dr. Abercrombie states the three different classes of persons in whom he has seen the vesicular disease occur, but without affording us any means of judging of the comparative frequency of this form of eruption in these different classes. Mr. Bryce, you will recollect, has candidly stated, that during the course of the last ten months, he has seen the vesicular disease occur in two unprotected infants, and Dr. Abercrombie, only refers particularly to one. By this enumeration, you will perceive upon how slender a foundation general observations in medicine may be built.

4th, With regard to the effects of small-pox in preventing the regularity of cow-pock inoculation alluded to in Dr. Abercrombie's 4th observation, I beg leave, in addition to what I have formerly

stated on this point, to refer to Mr. Ring's treatise on the cow-pox, where you will find that the experience of other observers does not by any means uniformly agree with that of Dr. Abercrombie.

5th, The fact stated by Dr. Abercrombie, in his 5th observation, is curious and interesting; and upon a careful review of all I have been able to see or learn of the present epidemic, it appears to me to be the only fact which can afford the slightest pretext for conceiving that one of the forms of the varioloid disease has been produced by a contagion different from that which is allowed to have given rise to all the others. Whether in the future repetitions of inoculation with the matter of eruptions conceived to be chicken-pox, positive results, such as I have stated to have been obtained in other places, may be produced, or whether these trials shall afford only negative results, must be left to future opportunities to determine; but whatever the results of these trials may be, they can have but little influence in inducing me to believe that the vesicular form of the varioloid disease depends upon the operation of a contagion different from that which produced the pustular, so long as these two forms of the disease shall continue reciprocally to produce one another in circumstances in which it is impossible to perceive any source of fallacy in the observation. It must at least be granted, that with regard to this point, there are at present two opposite sets of experiments, of which the one

destroys the other as far as its force goes, and by which, of course, there is occasioned a mutual destruction of belief and authority.

6th, I should be glad to have been informed, upon what number of cases Dr. Abercrombie's 6th observation rests, because, you will recollect, that of the 155 individuals whom I have stated that I had seen pass through the small-pox, not one, so far as I have been able to learn, has been subsequently attacked by the vesicular disease, though, upon the supposition of the co-existence of a varicellous with a variolous epidemic, most, if not all of this number, must have been exposed to the influence of both contagions ; and I may add, that of the 205 unprotected persons whom I had seen attacked by the varioloid disease in the form of natural small-pox, two only had previously passed through it in its vesicular form. Yet, from the circumstances in which these two patients were placed, there did not seem to be any reason to doubt that the vesicular eruption in them was the product of variolous contagion.

7th, That vaccination does not prevent the varioloid disease, in its vesicular form, is obvious ; but whether this vesicular disease be small-pox modified by vaccination, is the very point at issue ; and, therefore, to avoid the paralogism of begging the question, must not be either rejected or assumed in our reasonings concerning it.

I am well assured, from my own observation,

as well as from many experiments and facts recorded, that modified small-pox are capable of producing natural small-pox in the unprotected; but I am ignorant what the researches of Mr. Bryce and Dr. Hennen were, by which the fact has been established, that horn-pox produce small-pox by inoculation. If these researches are comprised in the effects produced by inoculation with the matter taken from Dr. Hennen's son, I can only say, that I regard these effects as proofs of the production of small-pox from the virus of an eruption, which I had the best opportunities to know, was strictly vesicular in its origin and progress; and I know likewise, that it was solely from the eruption in this case, possessing in a remarkable manner the characters supposed to be diagnostic of chicken-pox, that the inoculation of the children in the Castle, with matter taken from his son, was permitted by Dr. Hennen. In confirmation of this statement, I beg leave to subjoin the following letter from Dr. Bartlett, by whom the inoculations were performed:

" Manchester, 2d September, 1819. "

" MY DEAR SIR,

" Your letter of 29th August only reached me this morning, and I lose no time in replying to it.

" I need scarcely repeat, what I have so often stated before, that the first six children were inocu-

lated with matter taken from your son, for the sole purpose of ascertaining, whether varicella could be communicated by inoculation ; and that the operation was repeated upon the last seven, with matter taken from Mr. Wishart's child, in consequence of an opinion having gone abroad, that your boy's case was not one of varicella ; but that by doing so, I must at once convince you, that I considered both the children to labour under varicella at the time the matter was taken.

“ Indeed, judging solely from the appearances which both cases exhibited, I have no hesitation in saying, that in their commencement, progress, and decline, they afforded such perfect specimens of what has been described by authors as chicken-pox, that no one, without some pre-conceived opinion, could entertain a doubt of their being that disease.

“ As far as I can recollect, there did not appear to be any sensible difference in the appearance of the individual vesicles in the two cases ; though in that of your boy the eruption was more general and copious, than in that of Mr. Wishart's daughter. Indeed, in no one point did the two cases appear to me to differ, unless that while every child inoculated from your son became affected with an eruptive disease, not the least local or constitutional affection was produced in any of the seven children inoculated with matter taken from Miss Wishart.

“I cannot pretend to solve this difficulty ; but it has often struck me, that the circumstance might have been owing to decomposition of the matter taken from Mr. Wishart’s daughter, by its being collected on glass, and afterwards liquidated by the steam arising from hot water, while the virus from your boy was conveyed from him to the six children upon the lancets made use of, and which were not subjected to the process alluded to.

“These are all the circumstances which come to my recollection as connected with the subject of your letter. In concluding, I must beg of you to observe, that, in stating the two cases to have possessed the characters of varicella, I do not pledge myself to the support of their really having been such ; all I mean to say is, that when their appearances are alone considered, such an impression must be conveyed : their history, and more particularly the results of the inoculations from your boy, lead to a very different conclusion. With best remembrances to Dr. Thomson, believe me, my dear Sir,

“Faithfully yours,

“JA. BARTLET.”

“*Dr. Hennen,*

“*Dep. Inspector of Hospitals, &c.*”

The attention which I must give to other parts of the present investigation will not allow me to indulge in any further remarks on Dr. Abercrom-

bie's letter. In hazarding those which I have made, I feel assured, that the great interest which he takes in the points at issue, and his well-known zeal for the promotion of medical science, will induce him to excuse the liberty I have taken in commenting so freely as I have done on the opinions contained in his friendly communication.

During the time that I have been unexpectedly and insensibly led into the discussions occasioned by the communications of Mr. Bryce and Dr. Abercrombie, the varioloid disease has, in its progress in different parts of Edinburgh, continued to exhibit the same, if not greater diversities in its appearances, than those which I have already described. The epidemic, from its remaining confined to particular places, seems at present as if it were drawing to a close, and, in its decline, has manifested many of those irregularities which have been mentioned by practical authors as having occurred in the decline of former variolous epidemics. In one point only has it been steady, and that is in the fatality it occasions among the unvaccinated. A few of the diagnostic histories of some of the more recent cases will tend, I hope, still farther to illustrate the general description which I have given of this disease, and to confirm the opinion I have adopted of all its forms having had but one common origin.

One of the children in Hamilton's Close, Grass-market, to whom Dr. Alison refers as living next door to the Hamiltons without having caught the varioloid disease, was attacked by it about twelve days after the disappearance of the eruption in the last of these children ; and the disease in this child, as you will perceive from the following history, has proceeded in a very irregular and protracted manner :

JEAN BAIRD, ætat. 15 months, unvaccinated, was seized on Saturday, the 20th August, with severe febrile symptoms, which continued for three days, when a papular eruption, surrounded with inflammatory areolæ, came out. By the 3d day, the papulæ began to assume a vesicular appearance. By the 5th day, some of the vesicles shrivelled and dried into thin scabs, while others became pustular, and did not scab before the 8th day. The child laboured at this time under a severe aphthous affection of the mouth, accompanied with greatly increased discharge of saliva. Several fresh pustules appeared on the 8th and 9th days. By the 10th day, the whole of the eruption which came out first had disappeared, except one pustule on the right cheek, and two upon the lower part of the back, which had been much irritated. 12th day, two fresh pustules have appeared, surrounded with slight areolæ ; those which came out on the 8th and 9th days are now depressed in their centres, and surrounded with inflammatory areolæ ; and one large pustule on the foot is surrounded with a very extensive purple-coloured areola, accompanied with slight œdema ; has been affected with feverish symptoms since the evening of the 10th day. 13th day, the areolæ surrounding the pustules have almost entirely disappeared, and scabs have begun to form. The pustule on the foot has assumed a

more healthy appearance ; and the areola surrounding it is diminished in extent. 14th day, all the pustules are completely scabbed over, except that on the right cheek, formerly mentioned, which has been irritated afresh. 15th day, a few fresh papulæ have come out on the right side of the face. 16th day, a few of the papulæ which came out yesterday have become vesicular, others pustular, while others, again, still remain in the state of papulæ. 17th day, two fresh vesicles have appeared upon the breast ; the pustules on the face are increased in size, and surrounded with small areolæ. 18th day, one of the vesicles on the breast has become pustular and depressed in the centre, the other seems to have faded. 21st day, pustules on face have begun to scab ; the one on the foot has been broken ; areola surrounding it is diminished, and foot still œdematous. 25th day, another pustule has come out upon the foot, close to the one formerly mentioned, and surrounded by an areola. Some of the scabs of the pustules which came out after the 7th day still remain, while others have fallen off, exposing slight elevations of the cutis.

Such is the history of a case not yet terminated, which there is every reason to believe owed its origin to infection from the disease with which the Hamiltons, living in the room adjoining, were affected. The eruption has continued, you will perceive, to come out from the 24th August up to the present date, (18th September,) and has been sometimes vesicular, and sometimes pustular in its origin. Papulæ have preceded the vesicles and pustules ; and the vesicles which have become pustules, as well as the pustules themselves, have been surrounded by inflammatory circles, and have pass-

ed into the state of scabs. Whether fresh pustules may yet appear, and how long the scabs may remain, baffle conjecture. I do not know what opinion Mr. Bryce and Dr. Abercrombie may be disposed to entertain of the nature of the eruption in this child ; but to me it appears to have afforded, in its progress hitherto, an example of small-pox occurring in a very irregular form.

The varioloid disease has continued to exist, and has attacked children whom I have seen in eight different families in that part of the Canon-gate, lying between St. Mary's Wynd and New Street, where three of the deaths occurred that were formerly mentioned. You will perceive, by the histories of the following cases, that the same diversities have occurred in the appearances of the epidemic in the different individuals lately attacked by it, which I have described as occurring in other parts of Edinburgh, and which are supposed to countenance the opinion of their having proceeded from two contagions instead of one.

CATHERINE BLAIKIE, ætat. 14 months, vaccinated.—On Thursday, the 17th of June, was seized with symptoms of fever, which continued till Sunday, the 20th, when a papular eruption came out, chiefly confined to the region of the sacrum, where the papulæ were close set. There were likewise a few papulæ perceptible on the forehead, and some scattered over the other parts of the body. By the 3d day the papulæ had acquired somewhat of a pustular appearance, and several of the pustules on the sacrum had

depressions in their centres. In filling, which they continued to do till the 7th day, the pustules became prominent, and were distended with a well-concocted purulent fluid. By the 8th day, the pustules began to blacken; and at this time a few fresh papulæ came out on the back, which, in the course of three days, disappeared, without becoming either vesicular or pustular. The scabs did not fall off before the 10th day after their formation, and left behind blains and pits in the skin.

WALTER BLAIKIE, ætat. 5 years, vaccinated.—About three weeks after the disappearance of the eruption in Catherine, was seized with febrile symptoms of two days' continuance. On the third day of the fever, a purely vesicular eruption, resembling small blisters from burns, made its appearance, which in the course of four days acquired a slightly milky colour, and on the day following (5th day erup.) began to dry into horny scales. Some of the vesicles were irritated, and formed scabs, which did not fall off before the third week, and have left behind them blains and a few pits in different parts of his body.

CATHERINE BLAIKIE.—On Sunday, the 15th August, about three weeks after the appearance of the eruption in Walter, became fretful, with heat of surface and loss of appetite; and on Thursday, the 19th, a few pure vesicles, resembling blister, from burns, came out, confined chiefly to the forehead, hairy scalp, and back. 2d day, several more vesicles have come out on the back and hairy scalp, and some of them are surrounded with slight areolæ. A few of the vesicles which came out on the preceding day have subsided. 3d day, fresh vesicles have made their appearance, a few more of those which appeared first have shrivelled, small scabs have formed on their surface, and they contain a whitish fluid underneath. 4th day, a few fresh vesicles have appeared on the hairy scalp, forehead, and back. Four vesicles, which came out on the 2d day

of the eruption. have small scabs formed in their centres, and are surrounded with inflammatory areolæ. 6th day, fresh vesicles have come out since the 4th day. Those on the extremities have scabbed. 7th day, the vesicles which appeared after the 4th day, are as completely scabbed as many of those which came out before them. 10th day, the whole of the eruption has disappeared, leaving slight blains in the spots which they occupied.

On Wednesday, the 8th September, (about three weeks after the appearance of the last eruption,) became again affected with febrile symptoms, on the 2d day of which two deep-seated papulæ were discovered on the left knee. One of these papulæ soon after became vesicular, and scabbed on the 4th day after its appearance; the other filled but imperfectly with lymph, and a scab was soon formed on its surface. . On the 4th day of the eruption, two fresh papulæ came out upon the right side of the face. On the 6th day, the scabs of both of the vesicles on the knee fell off, the one leaving a blain, and the other a warty appearance on the spots which they occupied. The papulæ on the face became pustular, and were surrounded with areolæ. On the 8th day these pustules began to scab, and the scabs still remained on the body on the 10th day of the eruption.

In the first of these two cases, there have been, you must have remarked, three distinct varioloid eruptions. The first eruption, I had no doubt, was modified small-pox, not only from its appearance, but from the prevalence of natural small-pox in the immediate neighbourhood. The disease in Catherine was succeeded after an interval of three weeks, by a vesiculo-pustular eruption in her bro-

ther Walter, which bore in most points an exact resemblance to some of the milder cases of the varioloid disease that occurred in Jamaica Street. The second febrile attack in this girl did not occur till after an interval of two months from the first attack; and as her brother, in the intervening period, passed through a varioloid eruption, I am inclined to believe that she had been re-infected by him with the very same disease with which he had been infected by her, yet in this second attack you perceive that the disease consisted of successive eruptions of vesicles, which never became distinctly pustular. The third febrile attack supervened three weeks after the second, and ushered in a pustular eruption, the scabs of which have not yet all disappeared. Can the third eruption be supposed to have arisen from the infection which produced the second? Or did it arise from variolous contagion in the bed or body clothes of the child? Can this contagion have remained in the constitution? Or can it be supposed to have been derived from some other quarter? These are questions which I am unable to answer, and into the consideration of which I have no inclination to enter, because I am satisfied in my own mind that this case affords an example of a vaccinated child having passed through three separate attacks of the present varioloid epidemic, and each attack exhibiting in its progress a different form of the disease; forms of the varioloid epidemic, about the

nature of which, when individually considered, medical men are not likely to agree, so long as they continue to believe it possible to distinguish small-pox from chicken-pox, merely by the symptoms which these diseases exhibit.

During the progress of the first eruption in the girl Blaikie, three children of the name of Thomson, in a house on the opposite side of the street, were affected with the varioloid disease, in forms differing remarkably from one another.

CHARLOTTE THOMSON, *ætat.* 4 years, unvaccinated, was seized on Friday, the 25th June, with symptoms of fever, such as headach, heat of surface, pain of epigastrium, followed by delirium, on the 2d and 3d days of the febrile attack; and on Monday, the 28th, a papular eruption came out, interspersed with a roseolous rash. On the 5th day the papulæ had become pustular, and in many places coherent. On the 6th day, swelling of the face and œdema of the eye-lids supervened. About the 10th day, the pustules began to blacken. The scabs remained on the body from two to three weeks after their formation. At present, 6th week of eruption, blains and numerous pits on the skin are quite visible.

ANN THOMSON, *ætat.* 7. Was vaccinated on the 1st July; and on Friday, the 9th, (twelve days after the appearance of the eruption on Charlotte,) was seized with severe symptoms of fever, accompanied by a convulsive fit. On Sunday, the 11th, a papular eruption came out, which in the course of two days became vesicular, and in two days more pustular. Swelling of the face and œdema supervened on the 4th day, and on the 7th the pustules began to blacken into scabs of a horny nature. The scabs remained for

above 14 days before falling off, and left behind them tubercular elevations; and at present (the 5th week) blains are distinctly visible.

MARY THOMSON, ætat. 7, vaccinated. About two days after Ann fell sick, was seized with slight febrile symptoms, and in two days after this a papular eruption came out, which on the 3d day became vesicular, without showing any tendency to become pustular, and on the 5th blackened into scales, which fell off in the course of two days, leaving little or no discoloration behind them.

The first of these cases affords an example of the eruption which I have described as coherent natural small-pox; the second, of distinct small-pox, which I am doubtful whether to consider as having been modified or not by vaccination, though I am rather inclined to believe they were modified by that process; and the third, I consider as a fair example of the mild vesicular eruption in a vaccinated child; but an eruption obviously arising from the contagion of small-pox.

Another example of the varioloid disease, in a strictly vesicular form, occurred in a vaccinated child of the name of Goodfellow, living two or three doors from the Thomsons, of whose case the following is a short history.

JOAN GOODFELLOW, ætat. 5 years, vaccinated, was seized with slight febrile symptoms on Saturday, 7th August, which continued till the 10th, when a purely vesicular eruption came out, like blisters from small burns, that in its progress acquired a slightly milky appearance, which shrivelled, burst, and dried into thin scales by the 5th

day. On the 6th day, a few fresh vesicles appeared; and by the 8th, these vesicles, as well as those which appeared first, had completely disappeared.

In the High School Close, very near to where the Blaikies lived, ten cases of the varioloid disease have occurred; three in unvaccinated, and seven in vaccinated children. From the following histories you will perceive that the disease in the first of the three unvaccinated children was confluent malignant water-pox; that the second had two attacks of the varioloid disease in the pustular form, between which there was only a short interval; and that the third unvaccinated child had the disease in the mild vesicular form of chicken-pox. The seven vaccinated children have all passed through the varioloid disease in the vesiculo-pustular form, and have exhibited appearances very similar to those which are described as having occurred in Jamaica Street.

CATHARINE GRAY, ætat. 11 months, unvaccinated.—During the progress of a roseolous rash of some days standing, was seized, on Monday, 5th July, with severe febrile symptoms; and, on Wednesday 7th, a closely set papular eruption made its appearance, which gradually though imperfectly became vesicular. The vesicles were confluent on all parts of the body except the lower extremities. On the 5th day of the eruption, on the tops of the greater number of the vesicles on the face, trunk, and upper extremities, a small yellowish spot could be seen. Swelling of the face supervened, and œdema of the eyelids. The

yellow points gradually increased in extent till the 7th day, when the vesicles on the face and upper extremities began to blacken; at which time also the swelling of the face was diminished, and the fever which had continued unabated seemed to have left her. On the 8th day, the vesicles on the trunk began to blacken, while those on the lower extremities, which were distinct, continued purely vesicular. On this day she was seized with convulsive fits, which continued almost without intermission till early in the morning of the 9th day, when she expired.

JOSEPH BAXTER, ætat. 2 years, in the beginning of August was seized with febrile symptoms, which lasted for three days, when a papular eruption appeared. The papulæ gradually became pustular, and the pustules increased in size till the 7th day, when they were filled with purulent matter, and surrounded with inflammatory areolæ. At this time swelling of the face supervened. On the 8th day, the greater number of the pustules were depressed in their centres, and on the 10th the process of scabbing became general. The scabs, which were of a dark brown colour, began to fall off about the 15th day. About 12 days after the first eruption began to scab, this child was a second time attacked with febrile symptoms still more severe than at first, which were soon followed by a fresh eruption of papulæ in different parts of the body, that gradually became pustular, though the pustules were of a smaller size, and surrounded with less inflammatory redness than those of the former eruption. These pustules began to decay about the 5th day, and were converted into thin horny scabs.

JESS M'RAE, ætat. 6 months, unvaccinated.—On Monday, the 30th August, became fretful and restless, with heat of surface, and other symptoms of a febrile attack. These symptoms continued till Wednesday, 1st September, when a purely vesicular eruption made its appearance.

Fresh vesicles came out on the 2d day, and on the 3d day swelling of the left side of the face supervened. On the 4th day more vesicles came out, while those on the face and arms began to blacken. On the 5th day, a few more vesicles came out upon the legs. On the 6th day, several of the vesicles which had come out on the preceding day were punctured with a lancet, and their contents completely evacuated, when distinct elevations, perceptible both to the eye and touch, were left. On the 7th day, a few more vesicles came out on the feet; a few of those on the lower part of the back had acquired a milky appearance, and, with these exceptions, the whole of the eruption had formed into thin scabs. On the 8th day the vesicles on the feet had assumed a milky appearance. On the 9th day the whole of the eruption had scabbed over. The greater number of the scabs, which formed first on different parts of the body, had fallen off, leaving slight blains behind them; and, by the 12th day, the remainder separated, leaving the same marks in the spots which they occupied.

With matter taken from the last-mentioned child on the 6th day of the eruption, from vesicles which had appeared on the fifth day, Mr. McIntosh inoculated five unvaccinated children; three of them, at the same time, with cow-pock matter, and two without it. In one only of these inoculations did any redness succeed to the punctures; and this redness disappeared by the sixth day, without showing any tendency to vesication, or giving rise to any constitutional eruption.

It will be seen, from the history of the following case, that a train of symptoms considerably dif-

ferent from those which have been described as occurring in Jess M'Rae manifested themselves in a vaccinated child, who lived in the same room with her, and who was seized with the varioloid disease about four days before her.

DANIEL M'DONALD, ætat. 15 months, vaccinated, was seized on Saturday, 28th August, with febrile symptoms ; and, on the 29th, a roseolous rash came out, which, together with the fever, disappeared on the evening of Tuesday 31st, when a purely vesicular eruption made its appearance, which the mother compared to blisters produced by drops of boiling water. 2d day of the eruption, several more vesicles have come out on different parts of the body, and those which had appeared the preceding evening have increased in size. 3d day, Fresh vesicles have come out, and areolæ have formed round those which appeared first. 4th day, New vesicles have appeared, while the primary ones have assumed a milky colour. 5th day, A few more fresh vesicles have come out since yesterday, particularly on the arms and legs. The primary vesicles have assumed a more distinctly purulent appearance, and the areola surrounding them have increased in extent and brightness. The child's mouth has become sore, with an increased flow of saliva. 6th day, The vesicles which had come out last have acquired a purulent appearance, and a few of them have small scabs on their tops. 7th day, Some of the vesicles on the face are covered with a yellowish crust, while those on the arms are distended with fluid of a milky appearance, and are slightly depressed in their centres. The greater number of the vesicles on the trunk and lower extremities have begun to scab, while some continue to be filled with a limpid fluid, and others with fluid of a whitish colour. 8th day, A few fresh vesicles have come out on

the feet. Process of scabbing is become general ; state of the mouth improved ; and ptyalism diminished. 9th day, The vesicles on the lower extremities have assumed a more distinctly purulent appearance. 10th day, Almost all the pustules have scabbed over, and many of the scabs which had previously formed have fallen off, leaving blains in the spots which they occupied. 11th day, Two fresh vesicles have come out on the right hand, and two on the left foot. Some of the scabs on the back have fallen off, exposing ulcerating surfaces. 12th day, The two vesicles on the hand have dried into thin light coloured scales, while those on the foot have assumed a milky appearance. 19th, The whole of the scabs have fallen off except a few on the back, which have succeeded to slight ulcerations.

It seems superfluous to remark, that if the disease with which Daniel M·Donald was affected is to be considered as chicken-pox, it must be allowed to belong to a variety of that disease of which no description has as yet been given by practical authors. But if it was, as I conceived it to have been, a case of modified small-pox, then we are under the necessity of believing either that it was an eruption proceeding from the same contagion with the eruption in the child M·Rae, or of supposing that there existed in the same room, at the same time, two eruptive diseases, the one varicellous, the other variolous. The cases of Gray and of Baxter prove indisputably that small-pox existed in the Close. and that in the order of time they had preceded the varioloid eruption in M·Rae and in M·Donald. From what other source

can we suppose that the varicellous eruption had been derived? I deem it unnecessary to trouble you with the relation of the histories of any of the other cases that occurred in this Close in the vaccinated, as they appeared to me to have been simply cases of vesiculo-pustular modified small-pox.

But whatever opinions may be entertained respecting the nature of the two cases last mentioned, there can be no difference of opinion, I conceive, about the truly variolous nature of the two cases I have next to relate to you, which occurred during the progress of the cases last described, in a house but one door removed from the mouth of the High School Close.

HELEN COUTTS, ætat. 9 months, unvaccinated.—On Wednesday, 25th August, was seized with severe febrile symptoms; and, on the 26th, a roseolous rash came out, which continued till the evening of the 28th, when a papular eruption made its appearance. On the 29th, (2d day erup.) the papulæ became slightly pustular, and fresh ones appeared. On the 3d day of the eruption fresh papulæ had appeared, and the pustules were increased in size. On the 4th, some of the papulæ had become pustular and others vesicular; the latter were chiefly on the hands, legs, and feet. The face had become much swollen, causing blindness, which continued till the 9th day. From the 4th to the 9th day fresh vesicles and pustules continued coming out, while others were blackening. On the 11th day several of the pustules had scabbed, and others were distended with purulent matter. On the 12th day, several

more pustules on different parts of the body had begun to scab. Some of the pustules on the thighs had run together, forming large blisters filled with a purulent fluid. On the 13th day the appearances were nearly the same as on the 12th. 14th, Breathing had become much affected, accompanied with coma, and coldness of the extremities. Died about one o'clock, P. M.

ELIZABETH JOHNSTON, ætat. 4 years, vaccinated, was seized on Tuesday, 7th September, with severe febrile symptoms; and, on Thursday 9th, a small papula was discovered on the chin, and another on the breast. On the 2d day, the papula on the chin became pustular, while that on the breast faded. 3d day, The pustule is depressed in its centre, and surrounded with an inflammatory areola; three more papulæ have appeared on the chin. The inside of the mouth and gums are covered with aphthæ. The febrile symptoms, which had continued unabated till yesterday, are now somewhat less severe. 4th day, Another small pustule was observed near to the one that appeared first, the other papulæ have faded away, without becoming either vesicular or pustular. 5th day, The pustules have both scabbed. This child had passed through an eruptive disease about a twelvemonth before, which, at the time of its occurrence, was considered to be chicken-pox.

The only other instance known to me in which the varioloid disease has been observed in this quarter of the town, occurred in a house in Bailie Fyfe's Close, High Street, in two unvaccinated children. In both of these children the disease assumed the form of malignant water-pox, which were intermixed with gangrenous spots: The one died on the sixth day of the disease; and the

other, who passed bloody urine previous to his death, died on the fifth day.

At the north end of Causewayside, eight children have been, during this (September) and the preceding month, affected with the varioloid disease. Of these five were unvaccinated, and three vaccinated. Of the unvaccinated, the first affected died of malignant water-pox on the ninth day of the disease. A second has passed through coherent small-pox, which have left behind them numerous deep pits in the skin. Two have had distinct small-pox, which also have left behind pits in the skin; and the fifth, an infant of 9 weeks old, has passed through the disease in a very mild vesiculo-pustular form, as may be seen from the following history of this case:

ANNE NICHOLSON, ætat. 9 weeks, unvaccinated.—On Monday, the 6th September, was observed to be fretful and restless; and, on the evening of the same day, a small papula was discovered on the right shoulder, and on the day following a few more were observed on the hairy scalp and thighs. The papulæ became pustular on the 3d day, and on the 4th a few more vesicles had come out on the face and thighs. On the 5th day, the pustule on the shoulder was depressed in the centre, and surrounded with a slight inflammatory blush; a few on the thighs presented a similar appearance, and a few more vesicles had come out on the face and arms. On the 6th day, a scab had formed on the pustule on the shoulder, while the rest had dried into small thin scales. By the 10th day the whole of the eruption had disappeared without leaving any marks

behind it, except the pustule on the right shoulder, which has left a small horny scab.

In the three vaccinated children, the varioloid disease exhibited a considerable degree of diversity in its appearances; and if these cases had occurred sporadically, or in situations where they could not have been distinctly traced to the contagion of small-pox, they might have afforded excellent opportunities for the exercise of the sagacity of those, who believe it to be possible to distinguish, by the symptoms which they exhibit, cases of chicken-pox from cases of modified small-pox.

WILLIAM FULLER, ætat. 18 months, vaccinated, was seized about the middle of August with febrile symptoms; on the 2d day of which a roseolous rash came out, that disappeared on the day following, when a vesicular eruption made its appearance. On the 2d day after its appearance, this eruption assumed a milky colour; began to scab on the 5th day; and, by the 8th, the whole of the scabs had fallen off, leaving slight blains, which had entirely disappeared by the end of the 14th day.

JAMES DENHOLM, ætat. 5 years, vaccinated, was seized on Friday, the 3d September, with febrile symptoms, with heat of skin, restlessness, and high delirium. At the same time a roseolous rash was discovered extending over the whole body, which disappeared on the day following. The febrile symptoms and delirium abated on the morning of the 4th day of fever, when an eruption of hard papulæ, covered with small pellucid vesicles, made its appearance. This eruption continued to come out daily till the 6th day,

at which time there were to be seen on different parts of the body papulæ, vesicles, pustules, and scabs. On the 8th day, the greater part of the eruption had faded; those which had become pustular had begun to scab, and were surrounded with red areolæ. By the 11th day all the scabs which had formed on the vesicles and pustules had fallen off, leaving tubercular elevations; while some papulæ, which had neither become pustular nor vesicular, remained in the papular state.

WILLIAM DENHOLM, ætat. 3 years, vaccinated, was seized on Wednesday, 1st September, with feverish symptoms, accompanied occasionally with slight delirium, and continued so till Monday the 6th, when a few limpid vesicles came out upon his back. These vesicles were ruffled on the second day after their appearance, and formed scabs, which fell off by the 8th day, leaving blains in the spots which they occupied.

I shall trouble you with the relation of but three more cases of the varioloid disease. They have occurred in a family living in the Lawn-market, and, so far as I know, without any cases of the same kind being in their immediate neighbourhood.

ISABELLA M——, ætat. 2 years, unvaccinated.—On the evening of the 12th September was seized with retching and vomiting. On the 13th febrile symptoms manifested themselves, and on the same evening a papular eruption made its appearance on the face. On the 14th, 15th, and 16th, the eruption continued to come out on different parts of the body, appearing last upon the lower extremities. From this time the febrile symptoms entirely left her, and the papulæ became vesicular in the same order of succes-

sion as they had appeared ; first on the face and upper extremities, then on the trunk, and subsequently on the lower extremities. By Saturday, the 6th day of eruption, the vesicles had assumed a milky appearance, and had increased in size. By the 8th day they had acquired a more distinctly purulent appearance. On the 9th the pustules on all parts of the body, except the legs and feet, became depressed in their centres ; and, by the 11th, the eruption on the face, upper extremities, and trunk, began to scab, while the pustules on the lower extremities continued to be distended with a purulent-like fluid. By the 15th day several of the scabs fell off from different parts of the body, and the pustules on the legs and feet began to scab. At present, 17th day, the greater number of the scabs have fallen off, leaving blains, numerous pits, and slight tubercular elevations behind them.

This child, when a few days old, was attacked with an eruptive disease, which was vesicular in its commencement, became afterwards pustular, and, about the seventh or eighth day, formed into scabs, which, on falling off, left blains on the spots which they occupied. Three other children of the family, who had all been vaccinated, had been immediately before the birth of this child affected with a varioloid disease in the form of chicken-pox.

Mrs. M——, ætat. 27, passed through natural small-pox in infancy. About eight days after the appearance of the eruption in Isabella, a small papula was observed on the right hand, and another on the breast. On the day following she was seized with febrile symptoms, such as head-ach, pain of back, heat of skin, thirst, and loss of appetite,

accompanied by pain, and swelling of the internal fauces. The febrile symptoms continued severe for two days, at the end of which time the papulæ on the hand and breast had acquired a purulent appearance; and several fresh ones had come out upon the lower extremities, and two on the chin. The papulæ on the thighs and legs speedily became vesicular, while the two on the chin became more slowly pustular. The vesicles on the lower extremities dried into thin scales in the space of three days, at which time the pustules on the chin were full and prominent. On the 7th day of the eruption almost the whole of the scales had fallen off from the lower extremities, leaving scarcely any perceptible mark behind them, while the pustules on the chin had formed into firm prominent horny scabs.

ALLAN M. ætat. 4 months, unvaccinated. Eight days after the appearance of the eruption in the last-mentioned child, and without any previous perceptible sickness, a small red papula was discovered on the left upper eye-lid, succeeded on the two following days by a few more papulæ on the left side of the cheek. These papulæ in the course of three or four days became vesicular, and continued so till the 8th day of eruption, when they assumed a milky appearance, became depressed in their centres, and surrounded with inflammatory areolæ. At present, 10th day eruption, one of the vesicles on the cheek is surrounded with an extensive erythematous inflammation, giving to the integuments a hard feel. This vesicle, as well as the rest on the cheek and forehead, have an appearance not unlike that of cow-pock pustules. The left eye-lid is considerably œdematous, causing blindness of that eye. Several fresh broad and flat papulæ have come out on different parts of the body. 11th day, Eruption on the face and surrounding inflammation much as yesterday. One of the vesicles is discharging a thin semi-transparent fluid. Fresh papulæ have come

out, and many of those which were observed yesterday are filling with a watery kind of fluid. 12th day, The inflammation surrounding the pustule on the cheek is somewhat diminished; a thin scab has formed in its centre, and the matter contained in its circumference has assumed a greenish colour. The papulæ on different parts of the body are now more prominent, and contain on their tops a limpid fluid. 13th day, Several of the vesicles have acquired a purulent appearance, and are surrounded with slight inflammatory areolæ; others are still vesicular; and some seem to be fading. Inflammation of the cheek, swelling of the eye-lid, and appearance of the pustule much the same as yesterday. 15th day, The pustules on the face are now completely covered with dark coloured scabs. The eruption on different parts of the body has now assumed a more distinctly purulent appearance. A few fresh papulæ, which came out on the evening of the 13th day, are filling with a purulent fluid, but are unsurrounded by areolæ.

In each of these cases there are several circumstances deserving of your notice. The first affected has passed through a varioloid eruption which no one, in the least acquainted with the appearances of small-pox, could doubt of its being that disease in one of its severer forms; yet this child had, a few days after birth, been attacked with a vesiculo-pustular eruption at the time that three other children of the family who had been vaccinated were affected with a similar disease. The medical attendant, as I am informed, regarded this eruption as chicken-pox; but the parents were so convinced of its being in this infant the small-

pox, that they deemed it unnecessary to have it vaccinated. The opinion of the parents is rendered the more probable by the circumstance, that modified small-pox existed at the same time in several vaccinated children in the Close adjoining to the house where this family reside, and seems to me to be confirmed by the absence of secondary fever in an eruption so copious and severe as that through which this child has just passed.

The mother of these children had, in infancy, passed through the natural small-pox in a mild form, at a time when, as her mother informs me, they were proving fatal to others living in the same Close. On the eighth day after the appearance of the eruption in Isabella, Mrs. M. perceived a papula on her hand and another on her breast, that were followed by a febrile attack of two days duration, ushering in a scanty papular eruption, which speedily became vesicular, and dried into thin scales by the fourth day, with the exception of two papulæ on the chin that became pustular, and have dried into horny scabs raised on tubercular bases, affording an example of secondary small-pox, in the form of chicken-pox on the lower extremities, and of horn-pox on the face.

The pustules on the eye-lid and cheek of the infant came out without any perceptible fever, and have exhibited throughout an appearance as if they had been produced by inoculation. They have been followed by a papular eruption, becom-

ing in general vesicular, but part of which appears already to have begun to fade, and it seems doubtful whether the vesicles will become pustules. The second eruption has not, any more than the first, been attended with any very evident symptoms of fever.

It has not been uncommon, I may remark, in the progress of the present epidemic, for one or two pustules, as has happened in this lady and her infant child, to precede the general eruption for two, three, or more days. These pustules have been of a larger size, and more uniformly surrounded with distinct areolæ, than the other pustules in general have been. They constitute, I conceive, the appearance which has been denominated the *mother-pock* by practical observers; and I should often have been disposed to regard them as small-pox from inoculation, were it not that they have appeared, as in one of the present instances, at very short intervals before the appearance of the general eruption.

In concluding my account of the epidemic, it has been interesting to me to observe two additional cases of secondary small-pox, differing from one another so widely as the varioloid disease has done in Mrs. M. and her daughter Isabella.

After the numerous proofs which I have detailed to you of the co-existence of the vesicular and pustular forms of the present varioloid epidemic in

every part of Edinburgh, and of these two forms of the eruption seeming every where to have reciprocally produced each other, I am at a loss to conceive what other sort of evidence, besides that which I have already adduced, can be required, to establish the probability of these two forms of the disease having had a common origin. This conclusion, which seems to me to follow necessarily from the results of my observation, can be evaded, I conceive, only in one of two ways ; either, 1st, By supposing, that in observing and recording the cases of the varioloid epidemic which I have detailed, I have uniformly confounded the strictly vesicular form of the eruption with the pustular, or, in other words, the form of the eruption which Mr. Bryce denominates chicken-pox, with that which Dr. Abercrombie has denominated horn-pox ; or, 2dly, By supposing, that though I may not have confounded the vesicular eruption with horn-pox, and although the cases of the vesicular eruption which I have enumerated may have occurred in the circumstances I have pointed out, still I am not warranted to conclude, that the vesicular and pustular forms of the present varioloid epidemic have arisen from the operation of the same contagion.

I think it unnecessary to employ any arguments to combat the first supposition, because it relates to a point about which, if I have been inaccurate in my observation of the varioloid disease, the more

correct experience of others may yet detect, and expose the mistakes into which I may have fallen.

But, to establish the second supposition, it will be necessary to show, that the simultaneous and reciprocally successive appearance of the vesicular and pustular forms of the varioloid disease, in all the different parts of Edinburgh in which it has appeared, were mere casual occurrences, in which these two forms of the disease acted quite independently, and neither produced nor were produced by each other. Had the co-existence of these two forms of the epidemic been observed only in one or two situations, and could the contagions by which they were severally produced have been distinctly traced to different sources—chicken-pox to chicken-pox, and small-pox to small-pox—my conclusion, as being obviously unfounded, must at once have been rejected. But when, instead of this, we have seen, that chicken-pox have occurred along with small-pox, not only in every street and close of Edinburgh, but almost in every house in which the varioloid disease has appeared, can it be unreasonable to believe that they have had a common origin? Is it allowable, on any principle admitted in the calculation of probabilities, to suppose, that chicken-pox and small-pox, if they indeed be diseases specifically different from one another, should have occurred together at the same time in so many different places of this city? and will not, I may ask, the probability of their having

had a common origin in Edinburgh be infinitely increased if it shall appear, from the correspondence I have to submit to you, that the same co-existence has been observed in every other part of Scotland where the present varioloid epidemic has as yet occurred ?

I must now leave it for those who maintain that the present varioloid epidemic has been produced by the operation of two separate contagions, to trace the sources from which these different contagions have been derived ; to ascertain the points in which they agree and differ in the laws of their communication ; to inform us why, in the present epidemic, chicken-pox should always have appeared at the same time, and in the same places, with small-pox ? Why chicken-pox should have attacked so many of the vaccinated, and so few of the unvaccinated ? Why no one of those who have passed through the epidemic in the form of small-pox, should have been attacked by the chicken-pox ? Why but two of those who have had the vesicular eruption should afterwards have had an attack of small-pox ? And why the mild vesicular eruption should, any more than the malignant, require for its production a contagion different from that which produces all the other varieties of primary, of secondary, and of modified small-pox ? The careful examination of above 600 cases of the varioloid disease, in every diversity of situation in which it can be supposed to

occur, leads me to believe that one might, with exact parity of reason, and equal hope of success, attempt to prove, that the mild varieties of typhus fever, of scarlatina, and of measles, contagious diseases which have all prevailed during the progress of the present epidemic, have been produced by contagious specifically different from those which have given rise to the other more severe varieties of these diseases, as to attempt to show that the mild vesicular form of the varioloid epidemic, which has lately prevailed in Scotland, has been the effect of a contagion different from that which has produced the other more severe forms of small-pox.

II.

COMMUNICATIONS

RELATIVE TO THE

VARIOLOID DISEASE.

HAVING described the appearances of the varioloid disease, as it has presented itself to my own observation, and having stated my reasons for believing that it has, in every instance, arisen from the contagion of small-pox, I shall next lay before you the information contained in the communications of the different medical practitioners who have favoured me with their correspondence upon this subject. These communications may be divided into two classes; those which contain an account of the varioloid disease as it has lately been seen to prevail epidemically in different districts, and those which contain the opinions of practitioners, who appear to have judged of it either from the recollection of former varioloid epidemics, or from the observation of sporadic cases. The first of these classes being few in num-

ber, and containing chiefly matters of fact, I shall lay before you exactly in the state in which I received them; but the observations contained in the second class I shall, in order to avoid repetition, find it necessary to abridge, and arrange under the respective heads of the queries to which they are intended as answers. In perusing these communications, I must request you to turn to page 15 of the Appendix for the queries.

“ St. Andrew’s, 13th October, 1818.

“ MY DEAR SIR,

“ I was duly favoured with your circular letter concerning the identity of the vario-
loid diseases, and only waited for the arrival of my copy of the 56th Number of the Edinburgh Medical and Surgical Journal, to see Mr. Hennen’s paper, that I might answer it fully. I have scarcely ever experienced more satisfaction than I have done from the perusal of that most interesting report, and of the paper you have drawn up from the facts therein recorded, as the cases exactly resemble those which occurred in my practice, during the prevalence of the epidemic in this city and neighbourhood, in August, September, October, November, and December, 1817, and in the three first months of the present year; and the conclusions you have so distinctly drawn from these cases accord most accurately with those which I had formed. Indeed, so strongly was I

impressed with the idea of the identity of *small-pox*, *chicken pox*, and *modified small-pox*, that, in the month of April last, I prepared a set of queries, which I transmitted to some of my medical friends for their opinions on the subject. As some of my correspondents gave me very little encouragement to prosecute the investigation, and as others seemed so lightly to estimate the importance of the subject as to return me no answer, I had quietly sat down, convinced of the truth of my theory, but almost ashamed of having produced it, till the perusal of your paper awakened in my mind the hopes of seeing it firmly established. I trust it may have a tendency to establish the truth of the hypothesis, that nearly the same conclusions have been formed by different practitioners; and I therefore beg leave to inclose a certified copy of an extract of a letter I sent to Dr. Macfarlane at Perth, on the 15th of April, by which you will see the ideas I had formed of the subject in question. As Dr. Macfarlane's eldest son had the modified small-pox in a very severe manner under my care, I transmitted to Dr. Macfarlane a detailed account of his son's case, and also a particular report of the progress of the epidemic by which he had suffered. The extract is the concluding part of my long letter, which Dr. Macfarlane authorizes me to offer for your perusal if you require it, and it will be transmitted to you direct from Perth if you apply for it.

“I think it unnecessary to give you a detailed report of the cases of varioloid eruption which occurred in my practice, they so nearly resemble the general character which you have given in your paper. I think it will exhibit the whole in a more concise and useful point of view, by embodying the results of my practice and experience as answers to the different queries you have transmitted. During the prevalence of the epidemic, I saw upwards of 70 cases of eruptive disease, bearing marks either of pure *small-pox*, *modified* or *spurious small-pox*, or *varicella*, and one fatal case, in a child of 3 months, of small-pox occurring during the progress of a vaccine vesicle.

“Answer to queries 1st. I do not recollect ever having seen *varicella*, or *chicken-pox*, prevailing, without cases of eruption which resembled *small-pox*. Of late years I have remarked, that the disease called chicken-pox has been much more severe than it used formerly to be ; and many of the cases, occurring after vaccination, so much resembled *small-pox*, that if my mind had not been prejudiced against the possibility of such an occurrence, I would have pronounced the eruption to have been of a variolous nature.

“2d. As the practice of vaccination in this district was very general, and as my experience in private practice was of a later date than the practice of inoculating for *small-pox*, I am unable to answer this query in a satisfactory manner. Vac-

cination being generally performed very early, it is impossible to say what would have been the case if the child had been exposed to the chicken-pox contagion before that period. I certainly do not recollect ever having seen a case of chicken-pox preceding either small-pox or cow-pox ; nor have I met with a case where, after vaccination and chicken-pox, the varioloid disease occurred.

“ 3d. During the prevalence of the late epidemic, Mrs. W. ætat. about 35, who had been inoculated by the late Dr. Flint in her infancy, and had a distinct cicatrix, was, at the same time with one of her children, affected by this disease, and had an eruption of numerous pustules, which appeared to me of pure small-pox, and matured in the regular manner. The eruption on her child, which had been vaccinated, was generally pustular, but had in several places a vesicular appearance ; the pustules containing a *pearly* fluid, desquamating in black scabs. The mother of one of the children, which, in the first weeks of the epidemic, fell a victim to small-pox, had a considerable eruption on her breast, neck, and face, with a great degree of sympathetic fever ; but as she had had small-pox in her infancy, I considered, at that time, that the eruption was occasioned by the local irritation of the *virus* from the child ; but I am now inclined to think it was a secondary attack of small-pox. In the same family, at the same time, two

children, who had been vaccinated, had a mild modified small-pox.

“4th. The *varioid* disease has repeatedly occurred after regular cow-pock inoculation ; at least the arms of many showed *cicatrices* which were considered as satisfactory, and several cases have occurred where the most respectable practitioners had been satisfied with the progress of the vaccine vesicle ; the son of Dr. Macfarlane was conceived by his father to have been perfectly vaccinated. The symptoms in those cases were different in different subjects. In some, the eruption was decidedly pustular ; in others, vesicular. In some, the progress of the eruption was regular like small pox ; in others, irregular, and appearing in successive crops, as often occurs in chicken-pox.

“5th. In no case under my care, where the *varioid* disease appeared after vaccination, was the termination fatal ; though in many cases the eruption was very confluent, and, in the early stage, I was often much alarmed for the safety of my patient. Upon the completion of the eruption the symptoms generally abated, and there was rarely any secondary fever ; in most cases, by the 11th day of the disease, the patient might be pronounced convalescent, or at least quite out of danger.

“6th. In those cases where the patient had not previously passed through small-pox or been vaccinated, the symptoms of the disease were those of small-pox. One patient, a negro servant, died on

the eighth day of the disease ; the other fatal cases about the eleventh or twelfth. In all those cases the peculiar smell of small-pox was very distinct ; so much so, that I recognised it in one case upon entering the chamber of the patient, without knowing the nature of the disease I was called to visit.

“7th. I am unable to state with accuracy the proportion of deaths in those cases where the *varioid* disease attacked persons who had not been previously either inoculated or vaccinated. In this district I should conjecture that the proportion would be found nearly 1 in 20. In my practice the proportion was much greater, nearly 1 in 7 ; but it must be remembered, that in the country medical aid is seldom required unless the symptoms are excessively severe, and in several cases I was called in only a few hours before death. Most of the cases of this class were in the country, and had not been vaccinated from religious scruples.

“8th. I cannot recollect having ever seen *modified small-pox* and chicken-pox occurring in the same individual.

“9th. The general description of the varioid disease, as it affected the three different classes of persons it attacked in Edinburgh, agrees most accurately with those cases which came under my observation ; but in every case, even the most slight, I observed a very sore throat, generally attended with a slight hoarseness, and difficulty of swallowing the saliva, which you have not noticed, though

I, very early in the epidemic, marked it almost as a diagnostic symptom.

“10th. I am not acquainted with a single fact that has a tendency to disprove the hypothesis, that *small-pox*, *chicken-pox*, and *modified small-pox*, may arise from the same contagion.

“I have thus, my dear Sir, given you answers to your queries on this most important question of the identity of these eruptive diseases ; and I beg leave to enclose the extract from my letter to Dr. Macfarlane, not with the intention of claiming any priority to the hypothesis, but as corroborative of the ideas you have now promulgated. I think it would be satisfactory to you to see my original letter to Dr. Macfarlane for the detailed reports, and because I conceived it proper to transmit a copy of it to Dr. Jenner, though he never acknowledged the receipt of it. I am sure Dr. Macfarlane will transmit it without delay.

“I may only add, that the occurrence of modified small-pox after vaccination has done more to establish the practice in this neighbourhood than any thing that could have happened ; for every one was able to judge for themselves, in comparing the severity of the disease where no previous vaccination had been performed, and the mildness of that disease after vaccination.

“ Believe me to be, with much respect, my dear Sir,

“ Most faithfully yours,

“ P. MUDIE, M. D.

“ To Dr. J. Thomson,
&c.”

“ *Almada Hill, Hamilton, Oct. 12, 1818.*

“ SIR,

“ I was favoured with your letter, directed to my father, about eight days ago. I now send you all the information I can, with the opinion of Dr. Whitehead of this place. I expect to be able to send you some remarks by my father, and by Mr. Cook, surgeon here, very soon. I shall make my remarks in the form of answers to your questions, although they may not apply exactly to them.

“ 1st. About a year ago, a disease occurred in this place and neighbourhood, which, at the time, I called chicken-pox. From its great resemblance to small-pox, in the first case of it that occurred in one family, I should have been induced to consider it as that disease, had not the eruptive fever been of very short duration; had not the pustules reached their acmè quickly, and, after reaching it, very quickly scurfed off; and had not three of the children, evidently infected from the first, been so slightly affected, that the disease could

hardly be said to have run its course. Robert Patton's case* subjoined, may be taken as an example of this disease, though, upon the whole, it was severer. On the 8th inst. I visited this family: one boy of five years was first seized, and afterwards other five, two of them severely, the other three slightly, *i. e.* the eruption being gone in a week. One of them, a girl, 13 years of age, had only about two dozen over her whole body. The fluid contained in the worst cases seemed to be a mixture of lymph and pus. The eruption may be called vesicular in the commencement, and pustular when at its acmè. I examined the cow-pock mark in them all, and found it distinct. In the neighbourhood of this family, other children had the disease; but all slightly. Two individuals of this family, a child of 6 months, and a lad of 15 years old, did not take it, although equally exposed with the rest. They had been vaccinated. Three daughters of Mr. L—— of C——, all under 12 years of age, brought the chicken-pox, it was supposed, from Ardrossan, where, I believe, it prevailed epidemically; but all their cases were mild and genuine, that is, were vesicular, and of rapid increase and decrease. I saw one case in Bothwell, which had a striking resemblance to small-pox, but it was of short duration, and was attended with little fever. Lately

* See Appendix, No. VIII.

at Millburne, a village on the Avon, five miles from Hamilton, one family, I am informed, had five children affected with what they called small-pox, after vaccination, and here there were successive crops. This last was mentioned to me as a curious circumstance, without my having put a single question. The people, though they looked upon it as small-pox, were satisfied that vaccination had made the disease milder. Dr. Whitehead informs me, that last year at Larkhall, about four miles from this, the confluent small-pox prevailed, of which several people died; and that, at the same time, several children, who had formerly been vaccinated, had a mild disease resembling small-pox, but that none of them died. To appearance, these last were affected by the first. In his own family, he tells me, one child had the modified small-pox, (although she had been properly vaccinated,) which left pits after it. This disease he called at the time a severe case of chicken-pox. Neither Robert Patton's, nor any of the above cases that I saw, were attended by any peculiar smell.

“2d. Since I began to practice here, 13 years ago, almost all the children have been vaccinated, and I have seen no cases of chicken-pox except in those who were vaccinated. I attended two children, three months ago, who had the small-pox by no means in a severer degree than what I have noted in Robert Patton's case, and they had

never been either vaccinated or variolated. They had no smell: the one was 8 and the other 6 years old. Within one-eighth of a mile of Robert Patton, I am informed, that two little girls had the small-pox at the height about a fortnight ago, and have some scars and scabs on them, so that the pustules must have continued longer than in Patton's. I can hear of no other in the neighbourhood. On the 8th inst. I met by chance a child, of a year old, of my own vaccinating, in my immediate neighbourhood, who had on her body the remains of an eruption of a week's standing. It must have been an eruption of small vesicles; it was attended with considerable fever. About half a dozen children near this one have had the same complaint. 'This, I think, was chicken-pox.

"3d. I cannot answer this question.

"4th. Yes. In general it has had more resemblance to small-pox than chicken-pox, except in the cases of Mr. L.'s children, where the eruption was truly vesicular, that is, contained lymph. The vesicles, too, were all large and few in number, and hardly any fever was present.

"5th. I have neither known nor heard of any fatal case, excepting one confluent case which I attended, a child of four years of age, which died a few hours after coming to the Barracks here. It had travelled that day forty miles from the neighbourhood of Edinburgh, on the top of a baggage-

cart. The mother told me, that it had been vaccinated by the surgeon of the regiment.

“ 6th. They were those of distinct small-pox. Indeed, I know no difference, only that the peculiar smell of small-pox was wanting, or at least not well marked.

“ 7th. None have died in my practice ; but that has not been extensive.

“ 8th. I cannot answer this question.

“ 9th. For a description of the cases I have seen I must refer to that of Robert Patton, as they were all neatly similar to his, though differing in degree ; excepting Mr. L.’s children.

“ 10th. I know none. Dr. Whitehead is disposed to agree with your opinion, that small-pox, chicken-pox, and modified small-pox, are varieties only of one and the same disease.

“ You may believe, Sir, that if I could have sent you more satisfactory answers, I would have done it : but you may expect to hear from me again if any thing remarkable should occur. I am, Sir,

“ Your very humble servant,

“ JOHN HUME, M. D.

“ *To Dr. Thomson.*”

“ *Almada Hill, November 2, 1818.*

“ SIR,

“ I mentioned in my last, that a disease had appeared in my own neighbourhood, about a

mile distant, of the modified small-pox, which I imagined had been *real* chicken-pox, from the remains of the eruption that I saw on the child. I have seen another case to-day, in which the eruption began to appear on Friday last, after two days very slight fever; so slight, indeed, that the boy, 6 years of age, continued at school. I saw him to-day for the first time. I was told, that soon after the vesicles made their appearance, they were like little blisters filled with water. To-day, some are shrivelled into little scabs; others are still a little elevated, but are fast subsiding, as if their water was absorbed. In some, the edges of the vesicle seem to overhang its base. There is a red circle round each of them, even round those that are become scabs. In two days, I think, the eruption will be gone entirely. The boy is pretty well; but his tongue is white, and his appetite is not very good.

“I hope yet to see some cases of this disease from its commencement. An old woman of 70 called it the *nirle-pock*. Now, in this case, *nirle*, I think, is used as an adjective, and consequently means *little-pock*. Cullen, I believe, has placed *nirles* as a species of measles; and Dr. Jamieson, in his *Scottish Dictionary*, defines *nirles* as a kind of measles. Certainly the disease that I saw to-day has not the most remote resemblance to measles; but the word *nirles* is used very vaguely in

this part of the country. I suppose chicken-pock means merely a diminutive pock ? I am, Sir,

“ Your most obedient servant,

“ J. HUME.

“ *To Dr. Thomson.*”

“ *New Lanark, 11th January, 1819.*

“ MY DEAR SIR,

“ As you some time ago expressed a desire that I should transmit you an account of the varioloid disease which has prevailed extensively here since the month of June last, I am sorry my limited time has hitherto prevented the gratification I would have felt by giving you the wished-for information ; and I have to regret, that I can only at present make a few short remarks in the form of answers to the queries you have transmitted. I hope, however, to have it in my power, at no very distant period, to enter more into detail.

“ Since the commencement of the epidemic here, at least 322 cases of the varioloid disease have come under review. A large proportion of these have been seen by yourself, and many of them in different stages of their progress.

“ Of the 322 cases which have come under my observation, 57 have occurred in individuals who had neither had small-pox nor cow-pock ; 251 after regular vaccination ; 11 in individuals who had previously passed through small-pox, either natu-

ral or inoculated; and three have had small-pox co-existent with cow-pock.

“The three following Tables are inserted with reference to the 251 cases of small-pox which have occurred after vaccination. The 1st Table shows the population of New Lanark under 23 years of age; the 2d, the number of individuals attacked by the disease at different periods of life, from 3 months to 22 years inclusive; and the 3d, the interval of time which has elapsed after vaccination.

No. I.

Age.	No.	Age.	No.	Total.
Under		11	54	
1 year	57	12	72	
1	46	13	65	
2	50	14	89	
3	41	15	63	
4	38	16	71	
5	46	17	65	
6	42	18	67	
7	47	19	65	
8	52	20	67	
9	54	21	47	
10	60	22	37	
	533		762	1295

No. II.

Age.	No.	Age.	No.	Total.
Under		11	18	
1 year	10	12	16	
1	19	13	15	
2	21	14	8	
3	12	15	12	
4	17	16	6	
5	12	17	7	
6	12	18	2	
7	18	19	1	
8	13	20	0	
9	19	21	0	
10	12	22	1	
	153		98	251

No. III.

Interval.	No.	Interval.	No.	Interval.	No.	Total.
1 Month		9	7	9	19	
after Vac.	2	1 year	26	10	15	
2	3	2	16	11	15	
3	1	3	13	12	15	
4	2	4	13	13	7	
5	1	5	15	14	12	
6	7	6	15	15	7	
7	2	7	16	16	2	
8	1	8	17	17	2	
	19		138		94	251

“The 3d Table will, I hope, throw some additional light upon a subject which has excited considerable discussion, viz. the length of time which vaccination exerts its protecting influence over the constitution.

“Before proceeding to answer your queries, I shall only farther add, that the occurrence of modified small-pox has had the very best effect in completely establishing the credit of vaccination in this quarter. The anxiety now displayed to have the operation performed early is extreme, even by some of those who formerly were the most violent opposers of the practice. The short, mild, and often trifling eruptive ailment which has succeeded in the greater number of cases to vaccination, when compared with the severe, protracted, and frequently loathsome disease which has occurred where this valuable precaution has been neglected, is a most convincing and highly favourable proof to all of the great efficacy of cow-pock in modifying small-pox.

“Answer to query 1st. I do not recollect ever to have seen varicella prevailing epidemically, although it has frequently attracted my attention, and has appeared occasionally under symptoms of considerable severity. Only four cases of small-pox have been observed here in the course of the six years previous to the occurrence of the present epidemic; but these were brought from a distance while under the complaint.

“2d. I am unable to give a satisfactory answer to this query, as vaccination has been for a considerable time in almost general estimation here, and for the most part had recourse to in early infancy. I certainly do not remember ever to have seen varicella (anterior to the date of the present epidemic) precede cow-pock or small-pox; but since that period I have observed, in the same families, and at the same time with small-pox, several cases of mild eruptive disease in young persons, who had neither undergone small-pox nor vaccination. Some of these cases answered completely to the characters of chicken-pox, while others accorded more with the most common form of modified small-pox.

“3d. I have observed 11 cases of secondary small-pox. After natural small-pox the disease has assumed almost uniformly a mild aspect, not differing from small-pox modified by vaccination; while after inoculated small-pox it has been in three instances very severe, corresponding to my experience of genuine natural small-pox, as well as to the best descriptions which I have consulted on the subject. A remarkable case of small-pox, for the third time, occurred in a child of 12 months, in whom vaccination had been neglected. The first attack accorded with the usual appearances of modified small-pox; the second resembled more closely varicella; while the third afforded, in its symptoms and progress, a good example of genuine se-

were small-pox. The two last affections in this child were seen by yourself; the traces of the first were also distinctly visible at your first visit here. In all the children of this family vaccination had been neglected; so that previous to the commencement of the first, and during the two subsequent attacks, some of the other children were constantly affected with the disease.

“*4th.* By referring to the general statement it will be seen, that by far the greater number of individuals affected with the varioloid disease during the present epidemic had passed through regular cow-pock inoculation; none having been taken into consideration but those on whom distinct cicatrices were observable, accompanied often by the most satisfactory evidence from parents and professional men of proper vaccination. In a great number of these cases the eruptive fever has been violent, and of more determinate duration, than I have been accustomed to remark in varicella. In some cases, however, the eruption has been preceded by little or no fever, while in others the fever has taken place without any eruption following. In general, the eruption itself has been harder, more tubercular, turning more slowly vesicular, and becoming more pustular in its progress, than I had observed in chicken-pox. In a considerable number of instances in this class, I have not been able to discover, either with regard to the eruptive fever or

eruption, any difference from the best marked cases of varicella that have come under my notice.

“5th. No instance of death by this disease has occurred after vaccination, though some have been seriously affected; and from the confluent character of the eruption, and severity of the fever, which has continued in a few of these cases unabated till the seventh or eighth day of the eruption, I have not been without apprehension for the event.

“6th. In those who had not passed through small-pox or cow-pock, the disease has assumed, in the greater number of instances, the appearances of small-pox; but in a small proportion, the appearances of modified small-pox or chicken-pox have been observable. In one or two instances of the last description, regular small-pox have afterwards taken place. In most of the cases of natural small-pox the peculiar smell of the disease has been strongly perceptible.

“7th. Only six deaths have occurred among those who have been affected with natural small-pox, although many have been in the greatest danger, and have had tedious and lingering recoveries, attended, in not a few cases, by a succession of painful subcutaneous suppurations. Of the six fatal cases, two were of the kind denominated Malignant Chrystalline Pox. In these, with three of the others, petechiæ very early became evident. This appearance has not been uncommon among those of this class who have recovered. In all the

fatal cases death appeared to be occasioned by pulmonary disease.

“8th. Several instances of modified small-pox, for the second time, have presented themselves, and a number of cases where chicken-pox are stated to have intervened between cow-pock and modified small-pox.

“9th. The general description which you have given of the varioloid disease, with a few slight exceptions, agrees with my experience. You have, however, omitted to mention a sore throat, which has been a frequent though not a general attendant on the malady, often preceding the other symptoms, and in some cases continuing severe till the desquamation of the eruption. You have likewise passed unnoticed a roseolous rash, which has frequently come under my observation during the progress of the epidemic in this place. It has generally preceded the appearance of the varioloid eruption twelve or sixteen hours, and has almost always disappeared suddenly before or at the commencement of the eruption. This rash has, however, appeared occasionally at different periods of the eruption.

“10th. I am at present unacquainted with any circumstance tending to disprove the hypothesis, that small-pox, chicken-pox, and modified small-pox, arise from one and the same contagion.

“I shall only farther add, that my observation

completely supports the truth of the first conclusion laid down in your interesting paper on this subject, relating to the imperfection of the descriptions which have been hitherto given of small-pox, &c. I remain,

“ Yours very sincerely,

“ WM. GIBSON.

“ *To Professor Thomson.*”

“ *Lanark, 8th March, 1819.*

“ MY DEAR SIR,

“ I have to apologize to you for being so very long in acknowledging your letter, but a variety of circumstances has concurred to prevent me.

“ On reading and considering your observations upon the varioloid disease as it prevailed in Edinburgh, and the queries connected therewith, which you had the goodness to send me, I immediately, upon the suggestion of my friend Mr. William Wood, determined to communicate to you the results of my practice in the cases which had come under my observation; and your visit to this place in search of medical facts, and the very strong interest you have taken in endeavouring to trace the real nature and origin of the disease, made me still more anxious to lay before you a short description of the epidemic as it presented itself in Lanark and its vicinity.

“A few days since I was favoured with your letter, reminding me of my promise, and I shall now fulfil it by stating very shortly the leading features of the varioloid disease as it occurred here, in the form of answers to your queries.

“1st. I have generally, every harvest, seen cases which I conceived to be chicken-pox, and these without the occurrence of any thing like small-pox.

“2d. Chicken-pox generally, or I may say, always attacked those who had previously had cow-pock; and, with a very few exceptions, proved to be a truly mild disease.

“3d. I have seen only two cases of small-pox occurring for the second time. They occurred in females both above 20 years of age. The primary fever in each was very smart, and the eruption did not fade till about the eighth day.

“4th. I have seen upwards of 200 cases of the varioloid disease in persons who had previously passed through regular cow-pock; and in by far the greater number of cases it resembled chicken-pox, although, in four or five instances, it seemed to resemble small-pox, and was severe.

“5th. I have neither seen nor heard of the varioloid disease after vaccination proving fatal in this district.

“6th. In some of those affected with this disease, who had not previously passed through small-pox or cow-pock, the fever was scarcely more se-

vere than that of chicken-pox, and the eruption began to fade on the third, fourth, or fifth day. But, in general, the reverse was the case. The fever ran high; the eruption was copious and confluent; there was great pain and swelling of the fauces, the swelling extending over the head, body, and extremities; and a strong foetid smell was always easily perceptible. I lost one patient only; and I am informed by the medical practitioners here, that in three other cases this disease proved fatal. In several cases, I am informed, blindness was occasioned by the formation of specks on the cornea, but these have since gone off, leaving only tender eyes.

“7th. I saw about 20 cases where neither inoculation nor vaccination had been performed, and, as I mentioned in query 6th, only one died.

“8th. I do not remember to have seen the chicken-pox oftener than once in the same individual.

“9th. The description given by you of the varioloid disease appears to be nearly the same as that of the disease which prevailed so generally here a few months ago.

“10th. It appears to me exceedingly probable, that small-pox, chicken-pox, and modified small-pox, all arise from one and the same contagion.

“In addition to the cases which I have mentioned, I am informed by my friend, Mr. Cochrane of Kirkfield, that upwards of 50 vaccinated indi-

viduals have passed through the varioloid disease in his village. Several of these I saw, and they were, with two or three exceptions, all able to be out of bed during the whole course of the disease.

“I have again to apologize for not acknowledging your letter sooner, but I hope you will forgive me. I need not say, that this has been done so hurriedly that it cannot appear before the public, although the facts are stated so that you may use them as you may think proper. I am, in great haste, my dear Sir,

“Yours most truly,

“JOHN GIBSON.

“*To Dr. John Thomson.*”

“*Lanark, September 27, 1819.*

“DEAR SIR,

“The reason that I have delayed so long in complying with your request, was owing to the more or less continued prevalence of the varioloid epidemic here. I shall now, however, endeavour to give you every information in my power in the form of answers to your queries.

1st. When I studied, in Glasgow, under Messrs. Burns and Russel, I had frequent occasion to see what I then and every other person called chicken-pox, without small-pox being in the neighbourhood. But as the common people in Glasgow have

so strong an aversion to inoculation, small-pox might have existed in some quarter of the town during the time that chicken-pox were prevalent.

“*2d.* I have sometimes observed in the unvaccinated an eruptive disease, which, in its symptoms and progress, bore a striking resemblance to chicken-pox. These cases frequently occurred in families at the time that some other of the children were labouring under coherent or confluent small-pox; and had they been pointed out to me, without my having been told that small-pox were in the neighbourhood, I no doubt would have termed them chicken-pox. But the disease has usually assumed the most common forms of small-pox in the three different classes of individuals whom it has attacked.

“*3d.* I have only met with one individual who has had small-pox for a second time. In this case the eruptive fever was severe, but the eruption itself was scanty and distinct.

“*4th.* The varioloid disease has occurred to me in upwards of 60 individuals who had previously passed through regular cow-pock inoculation. In the greater number of these cases the eruptive fever ran high; the eruption itself was copious; and, in its appearance and progress, had a marked resemblance to small-pox. Three individuals in this class were so severely affected, that, had it not been for the absence of secondary fever, it would have been impossible to have distinguished them

from cases of severe natural small-pox. In several of this class, however, the disease in its commencement, progress, and termination, resembled chicken-pox.

“ 5th. I have seen no fatal case of the varioloid disease after vaccination.

“ 6th. The usual symptoms of the varioloid disease, in those who had not passed through small-pox or cow-pock, were, for the most part, those of small-pox.

“ 7th. In the unprotected, the varioloid disease has proved fatal in the proportion of about one in seven.

“ 8th. I have not seen chicken-pox occur oftener than once in the same individual.

“ 9th. The description which you have given of the varioloid disease, in the three different classes of persons whom it has attacked in Edinburgh, seems to me to correspond very accurately with the appearances which I have had an opportunity of observing in this disease as it has lately prevailed in Lanark and its neighbourhood.

“ 10th. That mild and modified small-pox bear a strong resemblance to chicken-pox must be allowed; but that they all arise from one and the same contagion is what I dare not venture to say.

“ Yours, &c.

“ W. VESSIE.

“ *To Dr. Thomson.*”

“ *Perth, 11th June, 1819.*

“ MY DEAR SIR,

“ In giving you a short account of the small-pox epidemic which lately prevailed in this place, I shall confine myself to a statement of facts, and a very short description of the varieties of that epidemic, as they appeared in different individuals, and at different times in the same individual. In this way, I hope to be able to answer the queries you some time ago sent me.

“ 1st. I have never seen chicken-pox prevail epidemically.

“ 2d. I have never seen a case of the disease called *chicken-pox* in a subject who was neither vaccinated nor had small-pox, but have been told by the parents of such children, that they had had chicken-pox. I have, however, frequently seen a disease, corresponding exactly with the descriptions given of chicken-pox, in some of those who had previously passed through vaccination. I have only seen one case after small-pox that at all resembled chicken-pox, and in that I could perceive no difference between it and those which succeeded to vaccination.

“ 3d. Five cases of small-pox have occurred in the same individuals twice; two after inoculated small-pox, and three after natural small-pox. Three of these had the disease more severely the second time than the first; one milder the second than the first time; and one very mild both first

and second time. In one, eleven years intervened between the different attacks; in a second, fifteen; in a third, twelve; in a fourth, two years; and in the fifth only six weeks. The subject of the latter case was a girl of 8 years of age; she had the disease very severe both times.

“*4th.* In 103 cases that have occurred in Perth and its neighbourhood, 37 have had the epidemic after vaccination, of whom 31 had the disease in its mild form. Although in a number of instances the epidemic corresponded with the descriptions given of mild small-pox, by far the greater number of cases of it resembled chicken-pox.

“*5th.* Out of thirty-seven who had the disease, one died.

“*6th.* In those who have had the epidemic, and who had not previously passed through vaccination, all the varieties of small-pox that I have ever seen described, have been exhibited, from their mildest to their most malignant form. In a few, however, the disease has so exactly resembled that which has been termed chicken-pox, that had it not been for the circumstances in which these cases occurred, I could not have allowed myself to believe they were cases of small-pox.

“*7th.* In fifty-six individuals who had small-pox, and who were neither vaccinated nor had had chicken-pox, fifteen died; being something more than one in four.

“*8th.* I have never seen modified small-pox, or

the disease which has been termed chicken-pox, occurring oftener than once in the same individual ; but have often, when questioning the parents of those children who had the epidemic if they had ever had chicken-pox, been answered in the affirmative.

“9th. With very few exceptions, the description which you have given of the epidemic which happened in Edinburgh lately, corresponds with that of the disease which prevailed here last summer.

“In all the severe cases, sore throat, which you have not noticed, was a very distressing symptom. Ptyalism was also frequently to be met with in severe cases. But the symptom that struck me as being the most remarkable, was the great difference in the appearance of the eruption in those who were and in those who were not vaccinated. In those who had the epidemic rather severely after vaccination, the eruption was papular during the first and second days ; by the third and fourth it became vesicular, depressed on the top, and a deep purplish ring round the base. The pulse was generally about 100 ; the heat of the skin considerable ; the throat much affected ; with great restlessness and anxiety. These symptoms continued till the fifth day of the eruption, during which the pox in most cases became pustular, plump, and full ; the dark ring round the base, with all the other bad symptoms disappeared. The eruption was gene-

rally at the height from the fifth to the eighth day, when the patient was left in a state of convalescence. Except in one instance, there was no symptom of secondary fever in the thirty-seven cases that occurred here. In that case, the febrile symptoms came on about the eighth and disappeared between the tenth and eleventh day. In this case, however, the young lady had arrived at her seventeenth year, and had been all her lifetime of an exceedingly weak constitution. It was only in those who had the disease in its most severe form after vaccination, that the symptoms above described appeared.

“In illustration of the most usual form in which the varioloid disease appeared in the vaccinated, I shall subjoin the following case :

J. BRYSON, aged 2 years, vaccinated. On the 24th September, 1818, complained of pain in her head and back, with cold shiverings. 25th, Had a restless night ; skin hot ; thirst considerable. Ordered her to take three grains of calomel, to be repeated every six hours until it operate. 26th, Physic operated well ; eruption begins to appear on the face and breast. 27th, Restless the early part of the night, but slept towards morning. Eruption papular ; fever nearly gone. 28th, Slept well last night. The eruption continues to increase. Almost free from fever. 29th, The eruption has a vesicular appearance ; skin very red ; no fever. 30th, Much the same as yesterday, the vesicles still increasing. October 1st, Had a good night. Fretful and feverish since morning ; bowels open ; eruption increasing, some of the vesicles filled with pus, others transparent in the centre, with a yellowish ring round the outer edge,

some much larger and quite transparent, whilst some are yet papular, and others can be seen shining through the skin. 2d, Had a pretty good night, eruption same appearance as yesterday; face considerably swelled; bowels open. 3d, Passed a very restless night; fretful, and seemingly very uneasy; eruption stands out well; a new crop seems to be coming out daily; face much swelled; left eye shut; bowels very open. 4th, Had a good night; fever much abated; eruption generally confluent on the face, and in some parts blackened. On other parts the pustules are plump and full, having central depressions; others on the extremities are still vesicular, and very large, broader at the top than at the base; cuticle very thin and transparent; some of these which have been accidentally broken, the fluid is completely evacuated, and the empty vesicle shrivelled and falling down, under which the skin appears smooth, red, and glistening; others not larger than a small pin's head, and decidedly papular. Swelling of the face greatly abated; appetite good; bowels regular. 5th, Passed a good night; eruption is generally falling back; the large vesicles are now generally shrivelled, and the fluid they contain is becoming opaque, and of a pearly colour. From this period she rapidly recovered. The eruption fell all gradually back at the same time, the pimples that were not formed, as well as the pustules and vesicles that were large, full and distinct.

“The symptoms of the disease were very different in those who had not passed through vaccination. In them the eruption appeared much sooner; generally about the second day. It was of a florid red colour, and in clusters; maturation was more early, generally about the third day,

when many of the more forward pustules burst, and threw out a brownish-coloured ichor, which, by evaporation, was speedily formed into a very dark yellowish crust, rapidly extending itself over the whole face, which now became swollen, and the eyelids œdematous, occasioning blindness. By the fourth or fifth day the eruption assumes a pale, clayey appearance; on those parts of the body where the pustules are more distinct, they are depressed on the top; the skin, if any parts remain uncovered with the disease, is pale and flaccid. The fever, though it suffers a slight remission, does not abate on the appearance of the eruption; but, between the eighth and ninth day, suffers a remarkable exacerbation. When life is prolonged much beyond this period, the skin becomes painfully hot to the touch; the eruption assumes a dark livid hue; petechiæ and passive hæmorrhages make their appearance; and death closes the scene, generally on the ninth or eleventh day.

“Of thirteen who had the disease in the form above described, only one recovered. In those who had the epidemic severely, but not in its most malignant form, the same train of symptoms, as described in those who had it severely after vaccination, appeared, with this remarkable difference, that, about the fifth day of the eruption, when all the bad symptoms disappeared in the former, in the latter they acquired force daily till from the

thirteenth to the seventeenth day, when generally they began slowly to recover. Of 29 who had the disease in this form, two died; one on the 17th, the other on the 20th day.

“ 10th. So far from being acquainted with any facts which tend to disprove the hypothesis, that small-pox, chicken-pox, and modified small-pox, may all arise from the same contagion, all the observations that I have been able to make, (and I lost no opportunity that came within my knowledge of doing so,) seem, to me, to tend most decidedly to confirm that hypothesis. Unless this hypothesis be true, how are we to explain the following facts—that in different individuals in the same family, where it is not possible to conceive that contagion could have arisen from more than one source, in one the disease should agree in every particular with the descriptions given us of chicken-pox; while in another it should correspond exactly with that given us of small-pox; and in a third with that given of horn-pox. These are facts which I have seen again and again, and which I conceive can be explained in no other way than by supposing, that small-pox, chicken-pox, and modified small-pox, *do* all proceed from the same contagion. But, further, in proof of the identity of the contagion in the different varieties above described, I have to observe, that in one family, where I attended during the prevalence of the late epidemic in this place, a poor widow wo-

man had three children, the eldest of whom took the disease, and had an immense load of small-pox. Upon inquiring whether the other two had been vaccinated, I was answered in the negative. I used every argument I could think of to persuade her to have them immediately vaccinated; but all to no purpose. I then suggested the propriety of inoculating them from their sister; to this she had no objection. Accordingly, on the seventh day of the eruption, I inoculated one of them, the other not being at that time at home. A slight degree of fever followed, and an eruption made its appearance. On the sixth day the fever disappeared; and, with the exception of the pock produced by the introduction of the virus, none of the others, which were not numerous, contained pus: all were vesicular; and, by the fifth day, had dried up, leaving small horny scabs, which dropped off by the seventh and eighth day. His brother was inoculated with lymph, which I took from one of the vesicles on the third day from their appearance. Five days after he was seized with smart fever. The eruption appeared on his body early on the third day of the fever. He had a numerous crop of distinct small-pox, which became pustular, and stood out till between the seventh and eighth day. There was no secondary fever.

“ Thus it appears, from these facts, that small-pox are capable of producing the disease which

has been called *horn-pox*, and *vice versa* ; than which, I presume, there cannot be a stronger proof of the truth of the hypothesis, that small-pox, chicken-pox, and modified small-pox, not only may but do all proceed from the same contagion. Indeed, so satisfactory to my mind has been the evidence of this, which I received at the bed-sides of the patients, that I am persuaded that no man, who is qualified to judge of the disease, and who will take the trouble to observe the different appearances in the same, and in different individuals in those parts of the country where the epidemic prevails, will be able to resist conviction, however much he may be prejudiced to the contrary before commencing his observations.

“ I shall now shortly state my reasons for believing, that all the varieties occurring in the varioloid epidemic lately prevalent here, originated from one and the same contagion.

“ *1st.* Because small-pox first appeared in a family in the South Street of Perth, a few days after an itinerant woman, having a child with small-pox on its body, had lodged there.

“ *2d.* Because the children of that family were allowed to mix with their playfellows, while yet in a state of convalescence, thereby spreading the contagion.

“ *3d.* When the epidemic appeared in a quar-

ter of the town distant from where it first broke out, it could be always distinctly traced to some individual, often servants, who, after having been attacked with the disease, had been removed to the houses of their parents or friends.

“4th. Because many distinct varieties of the eruption were to be found on the body of the same individual, as in Bryson’s case, which was by far the most common form of the epidemic.

“5th. Because all the different varieties of the epidemic were to be found in different individuals of the same family at the same time.

“6th. Because those who had had that form of the epidemic, agreeing in every iota with the mildest form of the disease, described by Dr. Heberden as chicken-pox, although often exposed to the most concentrated form of small-pox contagion, resisted it.

“7th. Because virus taken from a patient who had the pustular form of the disease, with central depressions, produced (with the exception of the pock occasioned by inoculation) a purely vesicular form of the disease. And,

“8th. Because lymph taken, on the third day, from the purely vesicular eruption, produced, by inoculation in another patient, a copious crop of distinct small-pox, which were first papular, then vesicular, then pustular, with central depressions, which stood out till between the seventh and

eighth day, as I have already stated more particularly.

“ I am, my dear Sir, yours faithfully,

“ W. M. HENDERSON, M. D.

“ *To Dr. John Thomson.*”

“ *Blair-Gowrie, 24th November, 1818.*

“ MY DEAR SIR,

“ I was favoured with yours of the 2d current, enclosing Dr. Thomson of Edinburgh's printed queries; and have thus long delayed answering it, that I might have it in my power to make some inquiry respecting the subject; but I am sorry my observations in this neighbourhood have been so limited, that I will not be able to communicate any thing interesting respecting it; for although there have been a great many cases of varioloid disease amongst us, yet, after the first alarm was over, and the people began to understand the nature of the complaint, it was only in very urgent cases that a medical practitioner had an opportunity of seeing it.

“ It was early in March of this year that varioloid complaints first made their appearance in this neighbourhood; and certainly, at first, were rather to be regarded as chicken-pox, being in general slight, with very little of eruptive fever. It attacked indiscriminately those who had been vaccinated and those who had not; still, however, it

was generally milder in the former case. By degrees, the disease became much more frequent, and at the same time more virulent, particularly in those who had not had cow-pock or small-pox previously; and no doubt could be entertained of many cases of small-pox, and some of them confluent. Still many other cases occurred at the same time, and in other members of the same family, which had all the characteristics of chicken-pox only. Indeed, in the same family, the members of which had all been vaccinated, we had frequently an opportunity of witnessing some in confluent small-pox, some with chicken-pox, while others, although sleeping in the same bed with the diseased, had no complaint whatever.

“I have only met with two cases of small-pox occurring a second time in the same individual; and in both the symptoms, although distinctly marked, were slight, and the eruption not at all copious. I have under my charge at present a severe case of confluent small-pox, which the patient declares is a second attack; but from his account of the symptoms of the previous attack, and no pits being distinctly visible, I am inclined to think it had been horn-pock. He has been in high delirium for two days, yet the pulse has been hardly, if at all, affected.

“I have heard of six fatal cases in this neighbourhood. Of these, one had been vaccinated, and retained the cicatrix distinctly. I had not an op-

portunity of witnessing the progress of this case, as the patient was moribund before I was called to him, and died that same night. Another of these fatal terminations was after vaccination several years before, but no cicatrix remained. The other four had not had either cow-pock or small-pox.

“The disease still continues here, but has subsided much both in frequency and virulence. It, however, still prevails with severity to the northward of this, and, I understand, has in several instances proved fatal ; in none of these last, however, had the subjects been either vaccinated or had small-pox.

“It is rather singular, that I have never been able to produce the disease by inoculation in those who had undergone vaccination ; but I have repeatedly inserted matter, taken even from the most malignant cases, into the arms of those who, I was confident, had been some years before properly vaccinated, and had satisfactorily gone through the disease, yet uniformly only a slight degree of inflammation took place around the punctures, with a very little fever, and both of these disappeared on the fourth or fifth day, without any eruption. I may, however, add, that, from the unwillingness of parents, and other causes, I had it not in my power to try this so frequently as I could have wished.

“These are the only remarks which occur to me at this time to send you. The disease has,

upon the whole, corresponded very much with the description given of it by Dr. Thomson; and I may add, that except in the fatal case mentioned above, and in which gross mismanagement in the treatment, during the whole of its progress, was but too evident, I have not seen any case, where the cicatrix of cow-pock distinctly remained, in which the complaint was at any time so severe as to create fears for the result. I am, my dear Sir,

“Your obedient servant,

“DAVID SYME.

“*To John Malloch, Esq.
Surgeon, Kirriemuir.*”

“*Kirriemuir, August 30, 1819.*

“DEAR SIR,

“I was this morning honoured with a letter from you, requesting an account of the varioloid disease that was prevalent in this town and neighbourhood some time ago, and it is with much shame I have to apologize for not answering your former letter from Lawers; but, along with the eruptive disease, fever existed to an extensive degree here, and as I was employed by the gentlemen in the neighbourhood to visit all the poor patients who chose to apply for relief, my time was so occupied, by attention to the numerous applicants, as not to leave a leisure hour for many weeks; and as I could not devote so much attention as I wished to the investigation of this dis-

case, I did not like to trouble you with a flimsy sketch of its appearance, well knowing the more substantial information you would receive from other quarters.

“ No case of small pox had occurred in this town for nine years till last winter, when an idle boy, who was in the habit of wandering about the country, frequenting markets, &c. happened to be at a house where some of the inmates were said to be ill of small-pox. He himself had been vaccinated some years before. On his return home, he was seized with febrile symptoms, and confined for two or three days to bed, when an eruption, similar to chicken-pox, made its appearance. Immediately the fever abated, and in a few days more he left his bed, and attended a cattle market, half a mile’s distance from the town, without experiencing any bad consequences. About a week afterwards, one of his master’s children was taken ill, and went through the regular stages of small-pox in a mild manner ; then a second similarly ; a third snffered in a very alarming degree from the confluent kind ; a fourth one rather worse than the two first ; and the youngest, of 8 months old, had what, if the other cases had not occurred, I would, without hesitation, have called chicken-pox ; for there was little or no fever, the pustules were filled with a watery fluid, which was not converted into the purulent appearance of small-pox. None of these children had undergone vaccination.

“A neighbouring family, who had all been vaccinated, were in the habit of frequently calling on them, none of whom were seized with the disease; but the novelty of the cases in this quarter brought many from other parts of the town to visit them, and, in a short time, the disease spread in all directions. Three cases occurred of adults undergoing the varioloid disease a second time, one of whom was much pitted in the face from the previous eruption some years before. None of these died; but among the unvaccinated the mortality was very great: but, after the most diligent inquiry, I have not been able to learn of a single case that terminated fatally after vaccination, except one, and that was reported in a way not to be depended on. Not a tenth part of those labouring under this disease received any medical attendance, the parents not choosing to apply for it; but had I not been specially appointed to aid the fever cases, I would most anxiously have visited those labouring under the varioloid disease gratuitously, and collected all the information I was able. This is the reason for this letter being every thing but perfect.

“In the course of fourteen weeks I attended 167 cases of fever, some of them at great distance in the country. This, you may be certain, left me little time to write observations, however willing; and I am afraid to sketch from memory now. I trust, Sir, my statement will do away any impressions of carelessness; for I sincerely regret that

my remarks could not be more ample from the circumstances in which I was placed. I have the honour to be, Sir,

“Your very obedient servant,

“JOHN MALLOCH.

“*To Dr. Thomson.*”

“*Douglas, Isle of Mann, March 6, 1819.*

“MY DEAR SIR,

“When I received yours, enclosing Professor Thomson’s letter on the varioloid disease, I had already been much pleased with his opinions, and those of other medical men, concerning its nature. Many cases similar to those in Edinburgh and other places, occurred here during the winter and spring of 1817, for the most part in patients who had undergone vaccination. Of course a great clamour was raised against the cow-pock, and the numerous apparent failures of its antivariolous powers excited much interest in my mind; I was therefore particular in taking a few notes and observations that presented themselves by this *Post-vaccine* disease, the substance of which I feel happy to communicate to you, according to your desire, for the perusal of Dr. Thomson, though I do not think I can add any thing to the information he has already acquired on the subject. I have unluckily mislaid his queries, so that I must speak of the disease without references to

them, giving all the information I possess concerning it.

“The small-pox appeared in this island in the beginning of the winter 1816-17. Vaccination had been almost universally practised in the towns, but not so in the country. It was in the country parts therefore that variola commenced its ravages. After two or three months, as the contagion spread, it increased in virulence, and not till it had become irresistible, as it were, in its action by its accumulation and quantity, did I meet with any well-marked case of the failure of vaccination. I had heard of several, but it was not till the winter was gone that the disease became general.

“The symptoms and character of this anomalous eruption, in all its varieties, were the same as those so accurately enumerated by Dr. Thomson in his description of the varioloid disease, bearing a striking resemblance to chicken-pox. In no case, however, did I observe a decided case of it to prove fatal. In most of the cases in which the eruptive fever ran high, an efflorescence came out all over the body, but more especially on the face, somewhat similar to measles, but more livid in colour, and less elevated from the level of the skin. This efflorescence, which seemed to be of a milliary nature, and owing to the great heat of the body, disappeared immediately after the varioloid eruption had shown itself, at which time also the fever almost altogether abated. When the disease occur-

red after the cow-pock, its severity appeared to bear a ratio to the length of time after vaccination. Thus in some families of four, five, and six children, all of whom had been vaccinated when infants, and who were seized in succession by the varioloid eruption, it was most severe in those of ten and eight years of age, less so at six, and at two and three, only showed itself by a few papulæ. Many of the older children had the disease very mildly, while it frequently happened that the younger escaped entirely, and thus it prevailed most in those of eight, ten, or twelve years after vaccination. In some cases the eruption became so much of a pustular nature, as to occasion by supuration, small marks or impressions of the horny crust in the face. In all the seven attacks, I observed, that after the crust had fallen off, it left exactly the same appearance and discoloration of the skin under it, as is the case in a mild attack of small-pox; but these sequelæ were by no means so permanent as in the latter disease. A young woman, who had not been vaccinated, nursed her mother during an attack of small-pox, that proved fatal. The young person became alarmed, and submitted to vaccination. The pustule was satisfactory, but it had hardly finished its course when she fell ill in the small-pox. The case was one of the varioloid disease; it is most probable that in this case the variolous contagion had been absorbed into the system before the action of the vac-

cine disease had taken effect in the constitution; that the cow-pock had created a change in the susceptibility of the habit undergoing the small-pox, is certain, from the modification the eruption presented. In this case also we see the origin of the varioloid disease, and it affords a proof that if the small-pox contagion is once received into the body, we must not expect a perfect antivariolous effect from the cow-pock. Indeed it is impossible to conceive that a quantity of such an active and virulent contagion as that of the small-pox can be absorbed into the living system without producing some diseased action. The failures of vaccination could not be owing to a spurious matter having been used for inoculation. The varioloid disease occurred in children vaccinated by the most eminent practitioners in different parts of the kingdom.

“It is worthy of remark, that the first case that indicated the small-pox to have reached Douglas, was one of the varioloid kind, occurring as secondary small-pox in a patient ten years of age. He had been inoculated when an infant for the small-pox, to the satisfaction of his medical attendant. The pustules were very few in number, had depressions in the centre, and dried into a crust by the seventh day. This patient was the only person in the family that was attacked, though there were several other children, and I could not trace any contagion as emanating from it. Several other instances of the disease attacking patients who had

had the small-pox occurred. One young man, whom his mother considered secure, by his having had, when an infant, a natural eruption, which the practitioner attending him at the time considered genuinely variolous, died of a secondary attack on the eleventh day of the eruption. I did not see him till the day before his death, at which time his face was one black and putrid mass, and the pustules on his body were confluent and filled with pus.

“ I cannot find in my notes that I remarked any case of the varioloid kind in patients who had neither undergone cow-pock nor small-pox. Such cases might have occurred amongst the poorer people, who were perfectly satisfied to let mild cases run their course without any medical assistance, or to let the patient be *in articulo mortis* before assistance was called for. That the varioloid disease, or modified small-pox, is capable of propagating a contagion *sui generis*, I am inclined to consider almost a certainty. In inoculating for the small-pox, it is a rule to take the matter from a patient mildly affected, and if this is neglected we are apt to propagate a disease of greater virulence than would have otherwise been the case. Spurious cow-pock also is known to generate a spurious pustule, and why may we not conclude that modified or spurious small-pox has the same property, assisted by a peculiarity of season and idiosyncrasy. Even the ferocious small-pox itself is regulated in

its attack, and sometimes altogether resisted by a particular temperament of constitution. A curious reflection occurs here; would it not be an interesting research to determine whether or not the cow-pock is some modification of a disease originally one of the human body; whether or not it is the small-pox changed and modified, by having passed through the system of the cow?

“When the varioloid disease became general among vaccinated patients, the strenuous advocates for cow-pock insisted that it was chicken-pox, and the opinion was born out by the most glaring similarity, but I could not divest myself of the idea that it was modified small-pox, or a failure of vaccination, as a complete specific against small-pox. To put the matter in some degree at rest, I prevailed upon a few respectable families, as well for their own and my satisfaction, as for the safety of their children, to submit their children to inoculation for the small-pox. All the patients had been previously vaccinated, and enjoyed every attention and comfort that could render the experiment satisfactory. They were inoculated with variolous matter of the eighth day. The results were various. In two individuals of fourteen years of age, the varioloid disease was produced, but the eruption was very scanty. It was ushered in on the ninth day by the efflorescent appearance of the face especially, and dried into crusts on the sixth day. The papulæ on the face

dried up however on the fourth. In one the inoculated part became inflamed, and papular, accompanied by slight fever and flushing, but followed by no eruption on the body. In one the inoculated part became affected to all appearance in the usual manner, without producing any constitutional derangement, and in others the virus effected nothing at all. The conclusions from these cases were evident, and need not be repeated. I was very desirous at the same period to try the effect of inoculating the varioloid matter, but refrained from a consideration of the evil impressions it might make upon the public mind.

“During the last six years that I have been resident in this country, chicken-pox has not appeared as a distinct epidemic, unless the late epidemic can be so named, and it would have certainly been so called, if the practice of vaccination had not previously existed. One would never have suspected that so many cases of secondary small-pox could have occurred. I recollect that, in Edinburgh, small-pox was generally prevalent in some degree when chicken pox was so. From my limited experience, therefore, my opinion with regard to small-pox, chicken-pox, and the modified small-pox, proceeding from the same contagion, can be of little consequence: but from the little I have observed, I am inclined to think that Professor Thomson’s conclusions are nearer the truth than Dr. Heberden’s doctrine. Indeed I consider

one of the most necessary of the improvements with regard to the philosophy of medical science, to be to reduce the number of specific diseases within the bounds of nature and of reason.

“ I remain, my dear Sir, yours very sincerely,

“ H. R. OSWALD.

“ *To Dr. Hannay, Liverpool.*”

“ 3, *St. David Street, Edinburgh,*
9th October, 1819.

“ MY DEAR SIR,

“ In consequence of your request, I now transmit you some observations, in answer to your queries respecting varioloid diseases, although I do not expect to add any thing either in the way of fact or remark to the mass of information on this subject which you already possess.

“ I have never seen chicken-pox prevailing epidemically, without small-pox prevailing at the same time.

“ You are aware that I am necessarily precluded from knowing any thing of small-pox or chicken-pox previously to the introduction of vaccination. In the course of my professional life I have had an opportunity of seeing small-pox epidemical only three times. The first time was in the summer of 1811, when I acted for my friend the late Dr. Erskine, in taking medical charge of the artillery at Leith Fort. The small-pox then

prevailed among the children of the soldiers in the village surrounding the Fort, many of whom had not been vaccinated, and, among those who had been vaccinated, a considerable number of cases occurred, which, from their appearances and progress, I was satisfied were chicken-pox. These cases were all so mild that there was not even a suspicion at the time that any of them were instances of small-pox after vaccination.

“As one of the surgeons of the Edinburgh New Town Dispensary, I have since seen the small-pox twice epidemical, once in the end of the year 1815, when they prevailed only to a small extent, and existed chiefly in one quarter of the town, and ceased without spreading generally; and again in the beginning of the year 1818, since which they have continued to prevail in all parts of the town, but for some time past have appeared to have been on the decline. During both these epidemics, chicken-pox have prevailed. In the first a number of cases occurred among the vaccinated, in the same situation with the small-pox, which from their appearances might have been considered as chicken-pox, but which, from their occurring in the midst of small-pox, it was considered doubtful whether they were to be regarded as chicken-pox, or small-pox modified by vaccination. An unvaccinated child was, however, seized with an eruption, which resembled chicken-pox, and faded by the sixth day, which led to the con-

clusion at that time, that the disease in the vaccinated was chicken-pox, and that small-pox and chicken-pox were prevailing together. The late epidemic in Edinburgh has been particularly severe and fatal among the unvaccinated. Chicken-pox has prevailed during its continuance; and among the vaccinated, many instances of an eruptive disease have occurred, which, either from the circumstances in which they arose, or from their severity and duration, there could be no doubt owed their origin to the contagion of small-pox.

“ I also saw the varioloid epidemic at New-Lanark Cotton-mills, which I visited at your desire in October last, when it prevailed most extensively there. I then saw nearly one hundred cases of the disease, which prevailed among the vaccinated and unvaccinated, and existed in all its forms from the most malignant small-pox to the mildest chicken-pox. I was informed by my friend Mr. Gibson, the surgeon there, that a beggar had brought a child recovering from small-pox into one of the houses, from which several children were infected; that previous to this there was no case of small-pox or chicken-pox in the mills, but that the disease spread rapidly among the vaccinated and unvaccinated; and I found it prevailing promiscuously in all its forms, not only in the same rows, but in the same houses and rooms. From these circumstances I could not doubt that all the varieties arose from the same contagion.

Among the unvaccinated, as well as among the vaccinated, the disease appeared to me in general considerably milder than that which prevailed at Edinburgh at the same time.

“ It is upon such observations as I have made during these epidemics, that I have founded my answers to your different queries.

“ Chicken-pox have not appeared to me to attack the unvaccinated nearly so often as those who have passed through cow-pock. Indeed in my experience, chicken-pox in the unvaccinated has been a rare occurrence. The exemption of the unvaccinated from chicken-pox may be supposed to arise from children being in general vaccinated at an early period. This does not however appear sufficiently to account for the fact, for it should render small-pox equally rare, yet small-pox is a disease much more frequent than chicken-pox in this class. I have, however, seen a vesicular disease corresponding to the descriptions of chicken-pox, in eight instances in the unvaccinated. In two of these the infection was caught from cases considered by some as chicken-pox in the vaccinated; in the others the disease occurred in circumstances in which there can be almost no doubt that they arose from the contagion of small-pox. In a house in the Canongate, where a child was dying of the most malignant small-pox, an infant had a scanty eruption of pure transparent vesicles, surrounded with superficial erythema, which came

out without much fever, and faded into thin scales by the fifth day, without becoming pustular. In the Causewayside a child, of the name of Hardy, had a scanty eruption of transparent superficial vesicles, which became milky and crusted by the fifth and sixth days, without becoming pustular, except under some of the crusts; and in the same room there was a boy with the crusts separating from his body after a severe attack of confluent malignant small-pox, and another in whom distinct small-pox were going through their course in a regular manner. In Blackfriars Wynd, a child had an eruption of pure vesicles, which became somewhat milky, but shrivelled and scabbed by the fifth day, while in the adjoining room another child went through a distinct small-pox, which though at first vesicular, became pustular, and stood out for eight days. At Lanark I saw two cases; one a child in whom there were sixty-two pocks, which had decayed into horny crusts by the sixth day, without having been pustular; and another in an infant of five weeks, in whom on the fifth day an eruption which had come out in successive crops, was chiefly composed of superficial vesicles, a few of which had become pustular; and on the succeeding day the eruption had begun to shrivel and to crust. The small-pox existed in the same houses with those children, and in the adjoining houses. The other case is that mentioned as having occurred in the epidemic of 1815,

which, as well as the cases of supposed chicken-pox which then occurred in the vaccinated, I have now no doubt arose from the contagion of small-pox with which they were intermixed. These cases, which I have mentioned as having occurred in Edinburgh, were seen by our friend Dr. Mac-lagan as well as by myself; and I have his authority for saying, that he considers the above statement with regard to them as correct.

“During the late epidemic, a varioloid disease has occurred in the vaccinated; and at Lanark more of this class were affected with it than of the unvaccinated. In general the symptoms and appearances of the varioloid disease in the vaccinated have appeared to me to correspond more with the descriptions of chicken-pox than of small-pox, although in several instances, from the severity of the eruptive fever, and the quantity and duration of the eruption, it resembled very closely the small-pox. In most of the cases of varioloid disease after cow-pox, I think I may safely affirm, not only from my own experience, but also from the observation of other practitioners, that it has been extremely difficult, if not impossible, to discover, from the appearance of the eruption, any accurate marks of distinction between chicken-pox and small-pox modified by vaccination; and I have certainly seen cases, which evidently arose from the contagion of small-pox, which exactly corresponded with the descriptions of vesicular chicken-

pox. It appears to me now most probable, that the cases of chicken-pox which occurred in the Calton in the year 1815, were produced by the contagion of small-pox, and I shall subjoin from short notes I took at the time, a few instances of purely vesicular chicken chicken-pox, which occurred at Lanark, where there could be no doubt they arose from variolous infection.

“James Cassel, aged 9, has had fever for four days. Two vesicles have appeared on the face, and one on the breast. I afterwards learnt that several more vesicles appeared, but that they did not become pustular, and faded by the fifth day.—Hugh Gray had passed through the disease. On the eighth day, when I saw him, there were no remains of the eruption, which had come out with little previous fever, and had decayed on the fourth and fifth days without becoming pustular.—Richard Scoular, after four days of fever, an eruption of several papulæ, speedily becoming superficial transparent vesicles with surrounding erythema, exactly resembling the vesicular chicken-pox, had appeared.—Janet Scoular had for four days slight fever, when four small vesicles had appeared on the face, which on the second day had begun to fade.—Isobel Cowden had an eruption of sparsely-scattered small vesicles, which on the fourth day had begun to crust on the face.—And, — Reid, who had been fully exposed to the contagion of small-pox, had been attacked with

fever, supposed to be the eruptive fever, which abated without any eruption appearing.

“ In those who had not been vaccinated, the varioloid disease in its appearances, duration, and mortality, has in general resembled small-pox; indeed in this class it has been at the different times I have had an opportunity of seeing it, remarkably fatal.

“ In one case which I saw at Lanark of a child affected with small-pox for a second time, the disease proved fatal. In this case, the first attack which seemed to arise from the contagion of small-pox which prevailed in the same house and the neighbouring houses, the eruption in its vesicular character and duration resembled chicken-pox; and it is remarkable, that a similar case at the same time existed at Lanark, where the second attack, though not fatal, was very severe; and another case is related in the Report of the Edinburgh New Town Dispensary, of a child who had a vesicular eruption, which appeared to arise from and to give rise to small-pox, but who a short time afterwards was seized with malignant small-pox, which proved fatal. Among those affected with the varioloid disease after vaccination, I have seen only one fatal case; and it is singular that it arose from the infection, of what by several was supposed to be pure vesicular chicken-pox, distinct from small-pox. The case I allude to is that of Taylor, in Jamaica Street, which you saw regu-

larly during its course. This case certainly appeared anomalous, in so far as the number of the eruption was not sufficient, even if it had been a case of unmodified small-pox, to lead us to consider it as one attended with danger. The death seemed to me to arise from a tendency to erysipelatous and gangrenous inflammation, and ulceration in the pustules, and in the textures surrounding them.

“I have repeatedly seen children affected with the varioloid disease after cow-pox, who, according to the accounts of their parents, had previously passed through chicken-pox; and I have lately seen a child, in whom a varioloid disease has occurred three times after cow-pox in the space of three months. In the first and third attacks the eruption was pustular, and in the intervening one vesicular, and each attack was preceded by considerable eruptive fever. I allude to the case of Blaikie, whom you saw in each of these attacks.

“The general descriptions which you have given of the varioloid disease, contained in your first paper in the *Medical and Surgical Journal*, as well as that in the work you are about to publish, which I have since seen, agree with my observation of the disease. Indeed most of the cases which I have seen, have been visited by you, and form a part of the great number from which these descriptions have been drawn up.

“With regard to the truth of your hypothesis

of the identity of the contagion of chicken-pox and small pox, I am well aware that there are many difficulties, and many sources of fallacy in its investigation ; but at the same time I am convinced, that, in our deficiency of accurate or direct information on the subject in the writings of medical authors, notwithstanding all that has been written on small-pox and chicken-pox, it can be ascertained only by an extensive series of observations of varioloid diseases, such as that in which you have been so zealously engaged. From my experience and observation, I am disposed to believe that your hypothesis is highly probable ; that there are no facts which disprove it ; and that it is the only one which has been suggested that can explain satisfactorily the different occurrences which have taken place.

“The smallness of the number of cases of varioloid diseases after cow-pock, which have been allowed to arise from the contagion of small-pox, by those possessing the most extensive opportunities of information, compared with the great extent to which mitigated small-pox have been observed, during the late epidemic, to prevail among the vaccinated fully exposed to the infection of small-pox ; and the frequency of secondary small-pox, compared with the belief of some of our best practical authors, that they did not occur above once in ten thousand instances, seem to me to prove that no cases except those which in their severity re-

sembled natural small-pox, have been allowed in general to be secondary small-pox, or small-pox after vaccination, and that many cases of these diseases must have been regarded as chicken-pox. Besides, the facts recorded by medical writers, that chicken-pox and small-pox generally occur together, and that epidemic small-pox in their decline have been observed to put on the appearance of chicken-pox; the production of small-pox, by the inoculation with the fluid from the vesicles of Dr. Hennen's son; and the circumstances that the contagion of small-pox gives rise in the vaccinated, and occasionally in the unvaccinated, to a disease resembling chicken-pox, all appear to me to support your hypothesis in a remarkable degree.

“I am aware, that there are some practitioners here particularly well acquainted with the subject of varioloid diseases, who, though satisfied that secondary small-pox, and small-pox modified by vaccination, have often been confounded with chicken-pox, still believe, that there exists besides these a peculiar vesicular disease, different from small-pox, and propagated by a distinct contagion, and that it has been present in Edinburgh during the late epidemic. Our knowledge with regard to this form of the varioloid disease is hitherto necessarily very limited; but I believe the characters supposed to distinguish it are, the purely vesicular form of the eruption; the impossibility of communicating it by inoculation; and the circumstance,

that some of the few unvaccinated, who have been observed to pass through this disease, have been left capable of undergoing the process of vaccination in a regular manner.

“ I have had an opportunity of seeing what has been regarded as this true vesicular chicken-pox in three situations. In Jamaica Street it prevailed to a considerable extent, and one unvaccinated child, a fortnight old, was affected with it in a very slight manner. In this child, and in all the others, the eruption possessed, during the first days, a remarkably vesicular character; but in the child Milne, who was also unvaccinated, by whom the infection was introduced, as well as in some other children who had been vaccinated, the disease, in the pustular form it assumed in its progress, in its duration before the eruption crusted, and before the crusts separated, and, in one instance, in its fatal termination, seemed to me to approach, in its symptoms, more nearly to small-pox than to chicken-pox. The disease also prevailed among several children in Hamilton’s Close in the Grassmarket, and terminated in attacking an unvaccinated child, in whom it had at first a vesicular character, but in whom the eruption of vesicles was succeeded by an eruption which had, from the first, a pustular form, and continued to come out in small numbers, and in successive crops, to the 16th and 17th days. The small-pox had prevailed, and, at the time, existed in the neighbourhood. In a house,

in the High School Close in the Canongate, several children had this vesicular eruption, and one unvaccinated child took it, who passed through it in a mild form, without the eruption becoming pustular; but I was informed, that two cases of small-pox had occurred in this house some weeks before, and I knew that at the time small-pox existed in a house in the Close, and in several neighbouring houses.

“ It does not appear to me, that the failure of communicating this disease by inoculation, which has now resulted in repeated trials, or the susceptibility of vaccination after it, are *proofs* that it does not arise from the contagion of small-pox; for it is possible, that the infection of small-pox may give rise to an eruptive disease, which may be imperfect, and may not produce the effects of genuine small-pox on the constitutions of those affected with it, and the virus of which may not be secreted in a state fit to produce it in others by inoculation. That this is not an unlikely supposition, I think, may be established by several circumstances.

“ *1st*, Instances are recorded, in which an eruptive disease, communicated to several individuals by inoculation with variolous matter, has left them wholly unprotected from future attacks of small-pox.

“ *2d*, It is known that, in Africa, small-pox cannot be communicated by inoculation during the

Hermattan winds; and I have heard it stated, by a highly respectable practitioner in Calcutta, that, during the hot season there, small-pox cannot be inoculated, that they cease to spread, and that a slight vesicular disease only prevails, which is regarded as chicken-pox.

“3d, During the late epidemic, in three instances, already alluded to, a vesicular disease, arising from the contagion of small-pox, was soon followed by an attack of malignant, and, in two of the three instances, of fatal small-pox. And,

“4th, I have known two instances, in which a mild vesicular disease, although arising from the contagion of small-pox, has not afterwards interrupted the progress of cow-pock. The first was in the child mentioned in the epidemic of 1815, and the other in a child, Dalgleish, in the Cansewayside, whom I did not see, but whose case of vesicular disease from the contagion of small-pox is one of those mentioned in the Report of the Edinburgh New Town Dispensary for April, 1819. Both these children were afterwards vaccinated at the Dispensary, and went through the cow-pock in a regular manner.

“At the same time, if it be allowable to draw any conclusion from an individual case, the following would appear to show, that vesicular chicken-pox does not uniformly leave the constitution susceptible of regular cow-pock.

“Helen Reid, aged 2 years, was vaccinated, on

the 17th May, by two punctures. On the 20th, no inflammation appearing, she was again vaccinated by two punctures. Eight days afterwards all the four punctures were found to have taken effect, and had produced pustules of the regular form, at that time equally advanced, but without any surrounding inflammation. The pustules began to crust on the 14th day, but no areolæ ever formed. Mr. Bryce, who saw them, considered them as similar to cow-pox, interrupted by previous small-pox. During the progress of the cow-pox, I accidentally observed a superficial mark on the child's arm, which induced me to ask the mother, if she was sure the child never had small-pox? She said, she was; but that it had been attacked by the chicken-pox about seven months before; that the eruption was few in number, quite watery, and stood out only four days.

“ From a consideration of all the circumstances which have occurred to me, I feel disposed to consider it more probable, that the vesicular disease may be, in many instances, an imperfect or spurious eruption produced by the contagion of small-pox, than that it should be a disease produced by a peculiar and distinct contagion hitherto undistinguished from secondary and modified small-pox; and to believe, that the cases of it observed during the late epidemic have, like the malignant water-pock, and all the other forms of the varioloid disease which have occurred, owed their

origin to variolous infection. I remain, my dear Sir,

“ Yours most truly,

“ JOHN W. TURNER.

“ *To John Thomson, M. D.*

“ &c. &c.”

Upon the foregoing communications I shall offer no comment ; because if the facts which they contain be admitted, you will, I conceive, be reduced to the necessity of believing, either that all the forms of the varioloid epidemic have been produced by the operation of one contagion ; or of supposing, what seems to me to be now more difficult to believe, that two specific contagions, the one variolous and the other varicellous, have acted together in every situation in which this epidemic has hitherto made its appearance.

As the second class of communications, with which I have been favoured, appear to me to contain, in general, opinions rather than matters of fact, and inferences rather than observations, I shall make no apology for offering a few cursory remarks on the opinions and inferences which these communications contain. I trust that those

gentlemen who have honoured me with their correspondence, will consider this endeavour on my part, to render the information they have afforded me useful to the public, as the best acknowledgment I can now make to them for the trouble they have taken in writing to me.

Query 1st. Have you ever had occasion to see chicken-pox prevailing epidemically, without cases of small-pox occurring among them?

The usual answer to this query, by my correspondents, has been, that they had frequently seen chicken-pox prevail epidemically without cases of small-pox appearing among them. One of them, however, states, that three weeks before the time at which he writes me. (October, 1818,) chicken-pox and natural confluent small-pox had prevailed in his neighbourhood. But, in giving this answer, most of my correspondents have omitted to mention, whether chicken-pox were observed to occur equally in the unprotected as in those who had previously passed through small-pox or cow-pock. Some, indeed, confess, that they have not seen chicken-pox unless in the vaccinated; and others, that chicken-pox appeared to them to be more frequent among those who had had small-pox, than among those who had not gone through that disease.

But, before the accuracy of the general observation can be admitted, it will be necessary to

1819

state, what pains were taken to ascertain that the epidemical eruptions, supposed to be chicken-pox, were really such, and depended for their production upon the operation of a contagion specifically different from that of small-pox. It will be necessary also to state, by what characters chicken-pox, when they prevailed epidemically, were distinguishable from small-pox, and whether the characters which chicken-pox exhibited were the same in the unprotected as in those who had previously passed through small-pox. If, as some of my correspondents state, they have seen chicken-pox prevail epidemically only among the vaccinated, it would be desirable to know, by what means they assured themselves that the disease was chicken-pox, and not modified small-pox. If, again, as some of the older practitioners state, they had seen chicken-pox occur more frequently in those who had, than in those who had not, passed through small-pox, it would require to have been ascertained, at the time of making this observation, whether cases of secondary small-pox had not occurred, and whether, in occurring, these cases most resembled small-pox, or the disease which has been named chicken-pox.

On a review of the whole of the answers to this query, it does not appear to me that the occurrence of chicken-pox, as an epidemical disease independent of small-pox, has been established by any information contained in the answers of

my correspondents. Nor do I perceive how this point can be satisfactorily ascertained, without a stricter attention being paid than has hitherto been done to the different circumstances which modify the appearances of varioloid diseases.

Query 2d. Have chicken-pox appeared to you to attack those who have not had either Small-pox or Cow-pock, as frequently as those who had passed through these diseases; and have you remarked any difference in the appearance of the eruption in these three several classes of patients?

In answer to this query, some of my correspondents ingenuously confess that they had not attended to the fact, whether or no those affected with chicken-pox had previously had small-pox or cow-pock. Others say they have seen chicken-pox in children who had neither had small-pox nor cow-pock; and others again allege that they have not seen the chicken-pox attack those who had not had either small-pox or cow-pock less frequently than those who had passed through these diseases. One of my correspondents adds, that he has not been able to observe any differences in the appearances of the eruption in these three different classes of patients.

From these answers one would naturally be led to imagine that epidemical chicken-pox, without small-pox, must have been very common occur-

rences; yet, in reflecting on the cases which, at the time they took place, I had conceived to be chicken-pox, I could not fix upon any individuals whom I had seen pass through this disease, who had not previously had small-pox or cow-pock; and on applying to several old and experienced practitioners, to learn whether they could, by notes taken at the time, by a reference to their books, or by any other means point out to me patients in whom the chicken-pox had preceded small-pox, most of these practitioners have frankly confessed that they could not, while others, in attempting to do it have failed. This has led me to enquire of a very great number of individuals, who had passed through both small-pox and chicken-pox, which of these diseases occurred first in them, and the answer I have generally received has been, that the small-pox occurred first, and the chicken-pox not till some months or years afterwards. I am inclined to believe that the cases in which chicken-pox appear to precede small-pox in the unprotected, will be found to be few in number, and that in these cases it is the vesicular form of small-pox preceding the pustular, that causes them to be regarded as chicken-pox.

Query 3d. Have any examples occurred in your neighbourhood of persons having had the Small-pox twice? and did it appear, in those

instances, that the disease was less severe in its second than in its first attack?

Eight of my correspondents state that they have seen no case of secondary small-pox, one of them in the course of fifty, and another of forty years practice. One of my correspondents mentions that he himself had suffered a second attack of the disease, from accidental inoculation. A second states that he had seen a case which he conceived at the time to be chicken-pox, but which by others was believed to be small-pox, followed some months afterwards by confluent small-pox. A third, that he had seen two well authenticated cases of secondary small-pox; and a fourth, an elderly practitioner of great experience and candour, states that he had repeatedly seen secondary small-pox occur in those whom he had inoculated for small-pox, but that he durst not venture to acknowledge this, lest the acknowledgment should have been injurious to the cause of inoculation, or hurtful to himself. He was obliged, he informed me, to denominate the disease, which he suspected to be small-pox, *chicken-pox*, *swine-pox*, *blebs* or *nirles*, and the explanation contained in these names was in general very satisfactory to his patients and their relations. How many other inoculators for the small-pox have felt themselves similarly situated, it is not for me to conjecture.

Query 4th. Has a varioloid disease occurred to

your observation in persons who had passed through regular Cow-pock Inoculation; and in the instances in which it may have occurred, whether has this disease appeared to you to resemble more Chicken-pox or Small-pox?

In answer to this query, seven of my correspondents state, that they have seen an eruptive disease occur after vaccination, which resembled small-pox more than chicken-pox, particularly in the early stages of the disease; others state that the disease, though like chicken-pox in its commencement, became like small-pox in its progress; and several have remarked, that according to their observation, chicken-pox have been more severe of late years than they were before the introduction of vaccination.

It is remarkable that it should not have been mentioned by any of my correspondents, except one, in their answers to this query, whether or no during the course of the occurrence of the eruptions resembling chicken-pox, which they have observed in the vaccinated, small-pox had not been found to co-exist, or to attack any of the unvaccinated. This omission is the more to be regretted, that it appears from the statements given, that the eruptions in the vaccinated had at some stages of their progress a resemblance to small-pox. My correspondents have also omitted to mention, by what means, in judging of the nature of these eruptions, they have been enabled to distinguish be-

tween aggravated chicken-pox and mild cases of small-pox, or between chicken-pox and modified small-pox. Indeed few of those who state that they have seen the chicken-pox prevail epidemically, appear to me to have recognised the existence of such a disease as modified small-pox, though in judging of the nature of a varioloid eruption it has now become a matter of as great importance, as it will be found to be of difficulty to distinguish between chicken-pox and modified small-pox. The observation that chicken-pox have of late years been observed to be more severe than before the introduction of vaccination, implies, I conceive, either that the chicken-pox have, within the period mentioned, borne a stronger resemblance than they did formerly to small-pox, or that the points in which these diseases resemble one another have been more accurately observed. It deserves to be remembered, that during inoculation for small-pox, it was agreeable for the friends of that practice to believe that small-pox and chicken-pox differed very widely from one another; and now that varioloid eruptions are occurring daily in those who had been supposed to be protected from small-pox by vaccination, it has become equally agreeable to find that these eruptions, though they have in many instances a perfect resemblance to small-pox, are in reality only a more severe and aggravated kind of chicken-pox

than were observed to prevail previously to the discovery of cow-pock.

In answer to this query, an old and experienced practitioner observes, "I have seen many instances of an eruptive varioloid disease occurring in those who had previously passed through the cow-pox inoculation, and have visited some whom I did not regularly attend, for the purpose of scrutiny; but I never have met with a single case in which the disease exhibited the phenomena of natural small-pox in its progress of eruption, maturation, and decline; the appearances being decidedly those which characterize varicella or chicken-pox, exhibited in various degrees of the disease in different patients, while the prevalence of natural small-pox at the same time, gave ample opportunity of comparison.

"The opinion of a specific infection in chicken-pox, appears to be one of those which medical men have implicitly adopted in succession, without hesitation or reflection. However, after a retrospective view of about half a century, partly previous to, and partly since the commencement of vaccination, combined with the proofs on which your opinion is founded, I cannot avoid seeing the strongest reasons for concurring with you in the belief, that variola, and what is designed chicken-pox, do not admit of a generic distinction, but are rather varieties of the same disease, derived from

the same source of contagion, the chicken-pox forming a second attack of natural small-pox."

Query 5th. Has this Varioloid disease, when it has attacked those who had been vaccinated, proved in any instance fatal?

Distinct answers to this query have been given by eight only of my correspondents. Four assure me that they have seen each, one death after vaccination, and the other four, that this event had not happened in their practice. Some attribute the deaths in the fatal cases to imperfect vaccination, others to improper treatment. Of those who attribute the deaths to imperfect vaccination, two account for the late increase of varioloid eruptions by a deterioration which they believe the vaccine virus undergoes in passing through a succession of individuals, while two others attribute the occurrence of varioloid diseases to a deficiency in the number of punctures made in vaccinating, and to want of sufficient care to preserve the vaccine pustules unbroken.

The supposition, that the occurrence of varioloid diseases succeeding to vaccination is owing to the imperfect manner in which that operation has been performed, by employing one puncture instead of four, is one which I cannot conceive to require a serious consideration; because though it may be allowed, that making four punctures instead of one or two, the number usually made in this country,

will increase the chances of infection, it passes all powers of comprehension to conceive, how increasing the number of punctures can in any way tend to insure the production of a genuine cow-pock. The admission of this hypothesis would oblige us to believe, that vaccine virus differs in this respect from that of small-pox, of itch, or of syphilis. For who ever imagined that the genuine nature of these diseases depended in any degree either upon the quantity of their respective contagions, or upon the number of points on the surface of the bodies through which they had been introduced? Were this supposition to be admitted, it would follow, I conceive, that a greater quantity of vaccine virus is required for the inoculation of an adult than of an infant; unless we are to be told, that it is by virtue of the number of the punctures, as well as by the quantity of the vaccine virus employed, that genuine cow-pock pustules are produced. But such suppositions seem, to me, to be fit subjects only for the application of those powers of wit and humour, with which the ingenious author of the "Histories of Small-pox and of Vaccination" has so successfully ridiculed the absurd opinions by which the practices of inoculation for small pox and vaccination were opposed at their first introduction.

Of those who have taken small-pox after having been inoculated for that disease, and after having gone through it properly, are we to suppose that

the whole, or a great proportion of these patients, had not been properly variolated, or that the second attack of small pox had arisen from the opening either of the inoculated pustule, or of the other pustules which were produced by it, or from a deficiency in the number of punctures employed? If the occurrence of the varioloid diseases which have lately appeared in this country is to be regarded as having in any way proceeded from a deficiency in the number of punctures employed, or from the vaccine vesicles not having been preserved unbroken, it must be evident, from the statement which I have given of the appearances and effects of these diseases in the vaccinated, that it is the preventive power only, and not the modifying, that has been affected by these circumstances. These two powers, the preventive and the modifying, indeed, seem to be separable from one another, and have undoubtedly been often separated in the production of the varioloid diseases which have lately prevailed in this country. I am not, however, acquainted with any facts by which it is possible to prove, that the preventive powers of cow-pock are in any degree more connected with the number of punctures, or the preservation of the vesicle entire, than the modifying powers are; but I have the pleasure to know, that in every instance in which, during the present epidemic, there has been even a single mark of vaccination having taken place, that the modifying power of cow-pock has

been most satisfactorily demonstrated. Besides, I believe it will be found, that vaccine vesicles, if left to themselves, very generally, in their progress, burst spontaneously ; and I know that, in many instances, single vesicles, which had been abraded, have appeared to preserve from infection individuals fully exposed to the influence of small-pox contagion, or subjected to the test by inoculation. What Dr. Heberden said of inoculation for small-pox, is now my belief with regard to vaccination :
 “ It is better to have it performed by any body,
 “ and in any manner, than to suffer small-pox to
 “ come in the natural way, though assisted by all
 “ the helps which art can afford.”

That the vaccine virus may undergo a gradual deterioration in passing through a succession of individuals is a point which I am not prepared either to affirm or deny, since it is one concerning which I have no accurate information. I may remark, however, that the establishment of this point, either by experiment or observation, would present an anomaly in the history of contagious diseases ; for I am not aware that any thing analogous to this alleged deterioration has ever been observed to occur in any of the other contagious diseases that are capable of being communicated by contact or inoculation from one human being to another. I know, in point of fact, that the vaccine virus which has been used at the Royal Public Dispensary here, and in other parts of Scotland,

for a series of eighteen years, still continues to produce in those who are inoculated with it, the very same appearances which it produced on the first trials that were made with it, and that these appearances agree exactly with those which have been delineated and described by Dr. Jenner as characteristic of cow-pock ; and I know, also, that the appearances of the vaccine vesicle produced by this matter, which must have passed through a succession of at least 900 individuals, agree exactly with those exhibited by vesicles produced by inoculation with the more recent equine matter with which I have been lately favoured by Dr. Jenner. Besides, I have seen a variety of instances, and have heard of more, in which the varioloid disease, during its late prevalence in Scotland, has attacked individuals who had been inoculated with cow-pock matter at an early period of the practice of vaccination obtained from the most authentic sources.

I am convinced that this supposition is unnecessary for affording a satisfactory explanation of the occurrence of varioloid diseases in those who have been vaccinated ; for absolute exemption from an attack of these diseases, in one form or other, does not seem to be obtained even by having passed through the small-pox ; and, unless we are to suppose, also, that those who are attacked with the small-pox for a second time must, at the first, have been infected with a deteriorated variolous virus,

it seems, in the present state of our knowledge, unreasonable to expect, that vaccination should give a greater security against an attack of the small-pox than can be obtained from having passed through the small-pox themselves, either in the natural way or by inoculation.

The hypothesis of a deteriorated vaccine virus does not appear to me to be warranted by any thing which has come under my observation during the progress of the present epidemic; for I have not been able to discover any difference in the modifying powers of the various sorts of vaccine virus with which the patients I have seen had been inoculated. The establishment of such a supposition could only tend to produce a general distrust in the public mind respecting the genuineness and purity of all vaccine virus, and consequently to encourage quackery in the medical profession. The varieties in the varioloid eruptions succeeding to vaccination, have appeared to me to depend entirely upon the unknown differences of individual constitutions.

Query 6th. What were the usual symptoms of this disease in those who had not passed through Small-pox or Cow-pock? Were they those of Small-pox, or of the disease which has been termed Chicken-pox?

The information contained in the answers to this query is very scanty. One correspondent in-

forms me that he has not seen the varioloid disease occur in the class of patients described in the query; another, that he has seen it only in this class, and that the symptoms were those of genuine small-pox.

It was my having seen the varioloid disease at first chiefly in the vaccinated, that led me to doubt of its being genuine small-pox. The appearances of the disease in the unvaccinated have assuredly been such as to leave no room for doubt with regard to this point. A considerable difference, however, in the malignancy of the symptoms and fatality of the disease, have occurred in this class in different districts, similar to what has been observed in the epidemical small-pox of different seasons, or of the same seasons in different places.

Query 7th. In what proportion of persons attacked with this disease who had not been vaccinated or variolated, has it proved fatal?

One correspondent only has answered this query, who states, that in no instance under his care has the disease proved fatal.

I regret the silence of my correspondents on this point, because I conceive it is by marking the number of deaths occasioned by small-pox in the unprotected, that we shall be best able to evince the inestimable benefit society may derive from the protecting influence of vaccination.

Query 8th. Have you had occasion to see any instances of modified Small-pox, or the disease which has been termed the Chicken-pox, occurring oftener than once in the same individual?

One elderly practitioner informs me, that he has not unfrequently seen chicken-pox in children who had formerly passed through a similar disease. My other correspondents state, that this event never had occurred to their observation.

Nearly one eighth part of those whom I have myself seen affected with the varioloid disease after vaccination, have had this disease for the second time. I have concluded the first eruption to have been of the same nature as the second, because it has been usually mentioned to me under the names of small-pox, chicken pox, swine-pox, chrystal-pox, blebs and nirls; and we must either suppose that these, and many other names which have been given to varioloid diseases, are expressive of diseases specifically different from one another, or admit that the different sorts of spurious small-pox designated by these names which occur in the vaccinated and variolated during the prevalence of epidemical small-pox, may all be produced by the virus of this disease.

Query 9th. Does the general description which I have given of the Varioloid disease, in the

three different classes of persons whom it has attacked in Edinburgh, agree with that of your observation; or in what respect does your observation differ from mine?

To this query two answers have been returned by my correspondents. The one, that my description is applicable to the cases which they have seen; the other, that they have not seen a disease coinciding exactly with that which I have described.

The varioloid disease, according to my observation, has seldom exhibited exactly the same appearances in any two of the very great number of persons I have seen affected by it. By trusting to nosological definitions alone, we should be led to expect a greater uniformity in the appearances of varioloid diseases, than will be found to exist in nature.

Query 10th. Are you acquainted with any facts which tend to disprove the hypothesis, that Small-pox, Chicken-pox, and Modified Small-pox, may all arise from one and the same contagion?

In answer to this query, one correspondent states, that he has no doubt but that chicken-pox and small-pox are as distinct as any two diseases in nature. A second, that his experience would lead him to a conclusion different from mine. A

third states, that he considers the difference between chicken-pox and small-pox to depend more upon some peculiarity of constitution than upon any specific difference in the contagions. A fourth, that he conceives chicken-pox to differ from small-pox, in being incommunicable by inoculation. A fifth, that he believes there are two kinds of chicken-pox as well as of small-pox. And a sixth only admits that he knows of no facts to disprove my hypothesis.

In conformity with the plan I had sketched out for myself in the introduction to this letter, I should now proceed to detail to you the results of the historical investigation in which I have been for some time engaged, concerning the varieties and the secondary occurrence of small-pox. But the execution of this part of my plan I feel myself obliged to defer till a future period. The facts and documents I have collected on these points have become too numerous and bulky to allow of their being submitted to you in their present form, and to analyse and condense them properly will require more time than, consistently with my other duties, I can at present afford. I shall not anticipate any of these results farther than merely to remark, that I have not, in my researches, met with any facts or statements inconsistent with a view which I have been led to take of the common origin of varioloid diseases. On the contrary, the

frequent co-existence of chicken-pox with small-pox, which is so often recorded to have occurred previous to the introduction of vaccination, and the almost uniform co-existence of these diseases in every situation in which they have appeared since that period, seem to me to indicate a relation between them highly deserving the attention of medical practitioners.

I am unwilling that an evidence so favourable to vaccination as that which these pages contain should be any longer withheld from the public, especially at a time when the small-pox appear to be spreading epidemically over a great part of the known world. In this general prevalence of small-pox, however, it is gratifying to find, that the modifying power of vaccination is every where so triumphantly manifested, and that even its supposed failures, when accurately investigated, have hitherto only tended to confirm, in the minds of the well-informed, the confidence which has been placed in the salutary effects of that practice, a practice becoming every day undeniably more worthy of the encouragement and support of those who, like yourself, have it in their power to recommend and enforce it.

That you may be long spared to carry into effect the enlightened views which you entertain with regard to every branch of the Medical Department of the Army, and to prosecute the various

useful inquiries in which you have so zealously engaged its medical officers, is the sincere and ardent wish of

Your obliged and faithful

Friend and Servant,

JOHN THOMSON, M. D.

Surgeon to the Forces.

5, GEORGE STREET,

Dec. 16, 1819.

APPENDIX.

No. I.

Some Observations on the Varioloid Disease which has lately prevailed in Edinburgh, and on the identity of Chicken-Pox and Modified Small-Pox, in a Letter addressed to Dr. Duncan, Jun.

By JOHN THOMSON, M. D. F. R. S. E.

[From the Edinburgh Medical and Surgical Journal, No. LVI.]

DEAR SIR,

I beg leave to communicate to you the results of some observations which I have had occasion to make in attending to the progress of the eruptive varioloid disease that has lately prevailed in Edinburgh, and of the occurrence of which in the Military Hospitals, my friend Mr. Hennen has given so accurate and interesting an account in the present number of your Journal.

My attention was first called in a particular manner to this disease, by the cases of it which occurred in the dépôt hospital, and by the cases in the Castle, produced by inoculation, with the matter taken from Mr. Hennen's son. Since that period I have seen, in various parts of the town, seventy-two cases of this eruption, including those which have

been detailed by Mr. Hennen. Of this number, eight have had the disease after having passed through the small-pox ; twenty-seven after having had the cow-pock ; two have had the disease co-existent with cow-pock ; and thirty-five, including the six children who were inoculated in the Castle, had not passed through either small-pox or cow-pock. Three of the children affected with this disease after cow-pock, had previously passed through an eruption of the same sort ; and in one of these I have had the best opportunity to observe, that the disease has each time exhibited the appearances which have been supposed to be characteristic of chicken-pox.

The greater part of those affected with this disease, who came first under my notice, had previously passed through either small-pox or cow-pock, or had had the disease communicated to them by inoculation. In watching the appearances and progress of the eruption in these persons, I was for a considerable time inclined to regard it as chicken-pox ; till, having an opportunity of observing its severity and fatality in those who had not undergone small-pox or cow-pock, I was compelled to abandon that idea, and to believe that in all the different forms under which this eruption has appeared, it could be no other than the small-pox.

This epidemic has attacked three different classes of persons: 1st, Those who had passed through small-pox ; 2dly, Those who had had cow-pock ; and, 3dly, Those who had had neither small-pox nor cow-pock : and in all of these it has appeared to possess some common characters. It has usually commenced in a vesicular form, or in a papular speedily becoming vesicular, and has become pustular only in some cases in its progress. The pustules have appeared sometimes with, and sometimes without a central depression. The eruption has been irregular in size and

form, as well as in the place of its first appearance, and in most instances it has appeared to occupy only the surface of the skin. It has, in almost all instances, come out in successive crops; some of which have appeared on the body after the eruption was at the height on the face. It has in general appeared, even in severe cases, to have arrived at the height on the face by the sixth day of the eruption, and in the milder not unfrequently by the fourth or fifth day. The fluid contained in the vesicles and pustules has, in a great number of instances, appeared to be lymph rather than pus, even to a late period of the disease, and has generally dried into horny scabs, covering tubercular elevations of the skin, which, in several instances, have been followed by pits or depressions of that texture. In the decline of the eruption, vesications, upon an inflamed basis of a greater or less extent, have frequently appeared upon the extremities, generally filled with lymph, but in a few instances with air; and, in some instances, small abscesses have formed in the subcutaneous texture. This eruption has rarely had any of the smell peculiar to small-pox. It has produced but very little temporary blindness, and has seldom been accompanied by the symptoms of secondary fever.

In four of the eight patients who had had small-pox, this epidemic has appeared in a highly aggravated and somewhat malignant form. Comparatively but few, I believe, have ever recovered of primary natural small-pox, who have had them in number and form similar to those described in Nos. 12, 13, and 14, of Mr. Hennen's cases. The disease in his fourth case, though severe, could not be said to be malignant; and in the other three instances it has been so mild, and of so short duration, that, had these cases occurred before the vaccine inoculation was known, no practitioner of experience would, I am convinced, have hesitated in

pronouncing them to be distinct and unequivocal cases of chicken-pox.

Of the twenty-nine patients who had undergone cow-pock inoculation, no one has died, and three only have had the disease in a very severe form. In by far the greater part of this class, the eruption has been papular or vesicular, without becoming distinctly pustular; and when it has become so, the pustules have appeared chiefly on the face, while the disease has remained vesicular on the rest of the body. In some of these cases, the eruption has been at the height by the third, in others by the fourth, in most by the fifth, and in the severer by the sixth or seventh day. I have not been able to discover in the appearances, progress, or termination of the disease, as it has occurred in those who had been vaccinated, any symptoms by which I could distinguish it from the three varieties of chicken-pox described by Dr. Willan, or from the numerous cases of that disease which I had seen before, and since the practice of vaccination has been introduced.

Of the twenty-nine patients who have had this disease in the natural way, without having previously passed through cow-pock or small-pox, nine have died. In five of these fatal cases, the disease was of the kind which has been so well described by Dr. Rogers of Cork, and by the late Dr. Walker of this place, under the name of malignant crystalline, or water-pox. In two of these, petechiæ, or livid spots, made their appearance before death; three died on the sixth, and two on the eighth day of the eruption. In the other four cases, the disease was pustular and confluent; one died on the ninth, two on the twelfth, and one on the eighteenth day.

In thirteen of those twenty-nine cases, the disease, though it has not proved fatal, has been more or less severe. In several, particularly in adults, it had, from the first, the

appearances which are usually described as characteristic of genuine small-pox, sometimes of the distinct, and at other times of the confluent kind. In others, the disease had at first the appearance of aggravated chicken-pox rather than of small-pox, the eruption coming out in successive crops, and being chiefly vesicular in its first stages, and becoming pustular only in its progress. In very few of the severer cases have there been any symptoms of secondary fever, and these have been mild and of short duration.

In the remaining seven cases the disease was remarkably mild, so much so, as to resemble chicken-pox, or the inoculated rather than the natural small-pox. In these, there was comparatively but very little eruptive fever; and in three or four instances, the disease seemed to be at the height by the fourth or fifth day. Had not these cases occurred in situations where the malignant small-pox existed, I should not have been disposed, from the appearances which manifested themselves, to believe that they could have originated from the infection of genuine small-pox.

The history of the progress of this contagion in the Military Hospitals has been so fully and circumstantially related by Mr. Hennen, as to render it quite unnecessary for me to enter upon it. I shall only remark, that there seems no reason to doubt, that all the cases of mild and malignant small-pox which have occurred in the Castle, were derived from matter taken from Mr. Hennen's son. He and his brother appeared to have caught the disease from Serjeant Williamson's son, and this boy again from the patient Wright in the depôt hospital, who passed through a disease which was regarded as distinct and mild chicken-pox. I may add, that in one of Mr. Hennen's children the disease was so mild as to escape almost unobserved; and in the other, from whom the matter was taken for inoculation, though the constitutional symptoms were at first severe, the

eruption appeared to me to afford, in every step of its progress, one of the best marked cases of chicken-pox which had ever come under my observation.

Though in other parts of the town it has been more difficult to trace accurately the progress of the contagion of this epidemic, yet, in several situations, the mild and malignant form of the disease have appeared evidently to produce each other. This was particularly obvious in two situations where the disease prevailed extensively, in the different floors of a tenement on the Castle Bank, and in those of another tenement on St. Leonard's Hill. From the fatality of the disease, in these two situations, among the children who had not been vaccinated, and its aggravated form even in some of those who had been vaccinated, no room was left for doubt that the disease was malignant small-pox; though, in both situations, several children passed through it in a form so mild and so accurately resembling chicken-pox, as, in my opinion, not to be distinguishable from that disease. I have been informed of the mild form of the disease producing the malignant in unvaccinated persons in three other places of the town besides those I have mentioned, and that, too, in families in the better condition of life. I hope the different medical practitioners, who have witnessed the occurrence of this important fact, will be induced to communicate to the public an account of the circumstances in which they respectively saw it occur.

It was my having seen the disease at first only in its mild form, and among those who had had small-pox or cow-pock, that induced me to believe, for a long time, that even the aggravated cases which presented themselves to my observation, could only be cases of chicken-pox; and I was the more disposed to take this view of it, that I had formed a similar judgment with regard to an epidemical erup-

tive disease, which I saw prevailing extensively in the villages of Colinton, Slateford, and Currie, during the year 1809. The present epidemic appeared to me to resemble in every particular that which I then had occasion to see, and which, from a careful comparison of its symptoms, in the milder cases, with Dr. Willan's description of chicken-pox, I had concluded to be that disease. I was the more confirmed in my belief of these epidemics being chicken-pox, from my observing at both periods two symptoms occur in several patients, which have been regarded by Dr. Willan and others as diagnostic of chicken-pox. I allude to the succession in the crops of the eruption, and the formation of vesications of greater or less extent, resembling those made by scalding water, occurring among, or in the interstices of the eruption, and producing the appearance which has been termed by some the *swine-pox*, and which, in treating of the diseases of the skin, I have been in the use of pointing out to my pupils as marks by which, in doubtful cases of small-pox or chicken-pox, they might determine the true nature of the disease. I mention this circumstance with a view to show the reluctance and difficulty which I have had in adopting the conclusions that have forced themselves upon my mind, and which I shall now briefly state to you.

1st, I have been convinced, by the varieties which have appeared in the form of this epidemic in the different individuals whom it has attacked, that the descriptions which have been given of the appearances and progress of the eruption in small-pox by our best systematic authors, are, in many respects, imperfect; that the diagnostic marks which have been pointed out between small-pox and the disease that has been termed chicken-pox, are not to be relied upon; and that no applicable marks of distinction between modified small-pox and chicken-pox have hitherto

been established. My observation would lead me to believe, that the eruption which succeeds to cow-pock, has more of a vesicular or varicelloid appearance in infants than it has in adults, while in these, again, it shows a disposition to become pustular, and exhibits more of the characters of small-pox.

2ndly, It appears from the records of medicine, that the same person may have small-pox twice, if not oftener, during life; and the number of cases of this which have lately occurred in so short a time in Edinburgh, and in so limited a number of patients, seems to me to warrant the conclusion, that this must have been a much more common event than has usually been imagined. It is an event which, I conceive, must have occurred frequently, though its occurrence is denied by some, and comparatively but few instances of it are recorded, even by those who believed in its possibility.

3dly, It has been, I conceive, incontrovertibly established by Dr. Jenner and his followers, that cow-pock has the property of rendering those who have passed through it, much less susceptible of small-pox infection than they were before; and, besides this, that it possesses also the invaluable property of modifying the small-pox in those who receive them, and of converting them from the most fatal of all diseases, to one scarcely, if at all, fatal. A sufficient number of observations has not yet been collected to prove satisfactorily, that this last property is possessed in an equal degree by the small-pox, though it seems probable from some, but not all of those cases of secondary small-pox which have been recorded, as well as from the result of some of the cases of this kind which have occurred in Edinburgh, that small-pox also possess a similar property.

4thly, By admitting that small-pox possess this modifying property, it will follow, that, in the instances in which

—they exerted this influence, previously to the discovery of cow-pock, they must have produced a mild and less fatal species of small-pox, but a species which has not been recognized or pointed out as differing from primary natural small-pox, by any author with whose writings I am acquainted. It seems, therefore, probable, that this secondary small-pox, which we have now so much reason to believe was of frequent occurrence, must have formed a considerable portion of the varioloid eruptions that were formerly denominated the spurious small-pox, and afterwards by some the chicken-pox. On the supposition that cow-pock preserves from the infection of small-pox in an equal degree with small-pox themselves, (and I am not aware of any facts which tend to prove the contrary,) it will follow that the twenty-seven individuals whom I have mentioned as having had the varioloid disease after cow-pock, would, if they had had small-pox instead of cow-pock, have become affected with small-pox a second time, on being exposed to the contagion of this disease, and that too in a form which, previously to the discovery of the cow-pock, must have appeared to practitioners as spurious small-pox or chicken-pox. In this case it is evident that thirty-five of sixty-four of the patients who took the varioloid disease in the natural way, would have passed twice through small-pox.

5thly, After Dr. Heberden had distinguished chicken-pox from small-pox, and had convinced himself and the medical world, that these diseases arise from two contagious poisons, specifically distinct from each other, it seems probable, that the cases of modified secondary small-pox which may have occurred, must have been described as cases of chicken-pox, since we no where find any hint of the possible co-existence of these two diseases, or of the danger in which medical practitioners are of confounding them together, and also, since we find authors of so great authority

as Dr. Monro *Primus*, and Dr. Heberden, affirming that small-pox after small-pox is an event of rare occurrence. The former says, "My correspondents almost all agree with me in affirming, that they never saw any attacked by true small-pox after they had the true kind, whether communicated by art or by nature;" and the latter, "It would be no extravagant assertion to say, that here, in England, not above one in ten thousand patients is pretended to have had it twice, and wherever it is pretended, it will always be as likely that the persons about the patient were mistaken, and supposed that to be the small-pox, which was an eruption of a different nature, as that there was such an extraordinary exception to what we are sure is so general a law."

It therefore appears to me, *6thly*, That it now remains to be investigated, in what proportion of the cases which have been denominated chicken-pox, it is probable the disease has been secondary modified small-pox; and, upon the supposition of these being two distinct diseases, by what marks we are in future to distinguish them from each other. I can only repeat, that, in a great proportion of the cases of small-pox which have occurred to my observation after small-pox, as well as in those cases that had been modified by previous cow-pock inoculation, I have not been able to distinguish them from chicken-pox, but have found every symptom in them to correspond most accurately with the descriptions of the varieties of chicken-pox, which have been given by Heberden, Willan, Bateman, and others. I am, therefore, satisfied, that previously to the discovery of the cow-pock, secondary small-pox being a disease frequent in its occurrence, must have stood in nearly the same relation to primary small-pox, that modified small-pox now stand in to cow-pock; and my present impression is, that

it may be, that chicken-pox and modified small-pox are one and the same disease.

I am not aware of any accurate or extensive series of observations which contradict this hypothesis, nor do I think it can well be set aside, till it shall be proved that chicken-pox occur generally in persons who have not passed through cow-pock or small-pox, and prevail epidemically without cases of small-pox appearing among them ; but of this I find no unequivocal example in the past records of medicine. There are upon record, it is true, many cases in which the spurious or chicken-pox are said to have preceded small-pox, and others in which the chicken-pox are said to have intervened between the cow-pock and the modified small-pox. Before, however, admitting that, in the production of these cases, there operated two poisons specifically different, it will be necessary to be assured, that the appearances exhibited by chicken-pox cannot be produced by the contagion of primary small-pox, and *vice versa*, as well as that the contagion of small-pox cannot produce an eruptive disease twice in those who have undergone cow-pock inoculation.

It will be necessary also to ascertain, whether those who have passed through small-pox in its milder form, are equally secure against a second attack of small-pox, as those who have passed through the disease in its more regular and severe form. For if it shall be found that those who have passed through the mild sorts of small-pox are less secure against a second attack than those who have passed through the severe, it will then be rendered probable, that many of the cases which have been considered as cases of chicken-pox preceding small-pox, were in fact only cases of mild small-pox, similar to some of those which have been produced by the present epidemic, in individuals who had neither passed through cow-pock nor small-

pox, and which exhibited in their appearance the characters that Dr. Heberden has assigned to chicken-pox.

Can it be that the hypothesis of the contagion of chicken-pox being specifically different from that of small-pox, has been had recourse to, in order to explain those cases of secondary small-pox which may have occurred after variolous inoculation, and in the benevolent wish of vindicating that practice from the aspersion of being inefficacious?

7thly, It seems to me certain, that the epidemical disease which has of late prevailed in Edinburgh, is the same with those varioloid diseases which, since the introduction of cow-pock inoculation, have been observed in many places of this and other countries, and which have been by some medical practitioners regarded as small-pox, and by others as chicken-pox. Of this kind, I conceive, was the disease which Mr. Brown of Musselburgh has described, as occurring in forty-eight individuals after cow-pock inoculation. This author has omitted to mention the period at which the eruption was at the height in ten of his patients, but in the remaining thirty-eight, it deserves to be remarked, that the eruption was in five of them at the height by the third day; in two by the fourth; in twelve by the fifth; in seven by the sixth; in nine by the seventh; and in three by the eighth day: and that no instance is recorded of death having occurred in any of these patients. Though Mr. Brown's statement was made for the purpose of throwing discredit upon the efficacy of cow-pock inoculation, the salutary powers of that practice in modifying small-pox, seem to me to be established by his cases, beyond all possibility of doubt or cavil. I can have no doubt also, that this is the disease concerning which the medical practitioners of Forfarshire published a short Report in 1813, and of which Dr. Adams has given a more minute detail in his Inaugural Thesis, printed here in 1814. This gentleman mentions, in p. 42,

that this disease, which the medical men of Forfarshire have concurred in denominating small-pox, had occurred in five or six individuals, who had formerly passed through that disease. The efficacy of the cow-pock in modifying the small-pox, is proved by the testimony of the medical practitioners, as to the mildness of the disease in those who had been vaccinated; and also by the fact, that no patient who appeared to have been properly vaccinated, died of it. The very interesting account given by Dr. Dewar, of the eruptive disease which has appeared lately in Fife, contains many proofs that the disease which he describes is the same with that which at present exists in Edinburgh. Of seventy cases attacked with this eruption, fifty-four had been vaccinated, and of these, one child, who had been long in bad health, died. Of sixteen who had not been vaccinated, six died,* a proportion considerably greater than that of the mortality which has occurred in Edinburgh.

Lastly, It seems to me, that the hypothesis which I have thrown out, if it shall be confirmed by future experience, will afford a satisfactory explanation of the nature of those varioloid diseases which have of late years been observed to succeed to the practice of cow-pock inoculation, and will, at the same time, reconcile the various and discordant opinions which have been entertained by medical practitioners, respecting these diseases.

I shall only add, that I feel no anxiety about the fate of this hypothesis, any farther than that it may tend to promote investigation, in the important subject to which it relates, and to defend the most valuable of all modern discoveries, in the only point in which it can now be supposed to be vulnerable.

* In this paper, as originally printed, the number of deaths is stated to have been four instead of six, a mistake which has since been pointed out by Dr. Dewar.

A friend, in whose judgment and experience I place the greatest confidence, has been pleased to express himself to me in the following terms: "The opinion suggested by you, that these diseases may all owe their origin to one and the same contagion, if true, would close up much debateable ground—connect and explain many anomalies—simplify our future inquiries—and place beyond any doubt the supremacy of vaccination, as a prophylactic of regular small-pox. Although the opinion suggested does still appear to me very doubtful, I think you will do quite right to publish your observations at once, and in the way you proposed. This will re-agitate a most important pathological question, and elicit from others, interesting information on many yet doubtful points in the history of those diseases. Though doubtful, however, I am far from thinking your opinion fanciful or unfounded; on the contrary, I could furnish some hints rather favourable to its probability."

Before concluding these observations, permit me to avail myself of this opportunity, to return my best thanks to my friends, Drs. Maclagan, Moncrieff, Tweedie, and Bartlett, and to Messrs. Johnston, Shetky, White, and Thomson, for the opportunities which they have afforded me of seeing the patients affected with this disease under their care; and permit me at the same time to say, that I should feel myself particularly obliged to any of your readers who take an interest in this subject, by their communicating, through the medium of your Journal, or by letter, addressed directly to myself, any facts which may have occurred in their practice, tending either to confirm or to refute the hypothesis, *that small-pox, chicken-pox, and modified small-pox, all proceed from one and the same contagion*. I remain, dear Sir, yours, &c.

JOHN THOMSON, M. D.

5, GEORGE STREET, }
15th September, 1818. }

Additional Observations on Varioloid Diseases. By JOHN THOMSON, M. D. &c. &c.

DEAR SIR,—Since sending you the “Observations on the Varioloid Disease, &c.” I have had occasion to see twelve additional cases of it in Edinburgh. In two of these the disease has occurred in persons who had previously passed through small-pox. It has attacked, for the second time, a boy who had been inoculated with cow-pock; and it has proved fatal in two instances, in which the patients had not passed through small-pox or cow-pock inoculation.

Having been informed by my friend Mr. William Wood, that a varioloid disease similar to that which had occurred in Edinburgh was prevailing in the town of Lanark, and at Mr. Owen’s cotton-mills in that neighbourhood, I visited that place, and found that the disease had prevailed very extensively in the town, but was then beginning to decline. Five instances were mentioned to me by the medical practitioners in which it had proved fatal, but I could not hear of any deaths having taken place among those who had previously undergone vaccination.

At Mr. Owen’s mills, through the obliging attention of Mr. Gibson, who has the medical charge there, I had an opportunity of seeing 118 cases of young persons affected with this epidemic. In its general appearances the disease bore a very striking resemblance to that which I have had occasion to see in Edinburgh, though on the whole it appeared to me to have a character considerably milder. Four only of those affected with it had previously passed through small-pox; in two of these the disease was mild, but in the other two severe. Eighty-two had this disease after having passed through the cow-pock. In a few of

these it might be said to be severe, but in by far the greater number it was extremely mild, and exhibited the most convincing and agreeable proofs of the efficacy of cow-pock in modifying small-pox. Thirty-two had the disease without having passed through either cow-pock or small-pox, and what appeared to me remarkable, it had proved fatal only in one person of this class. Several, however, had been in imminent danger, and their recoveries may be tedious. Five or six in this class, as well as a considerable number of those who had previously passed through cow-pock, had the disease in a form so slight as to agree with the descriptions which have been given of chicken-pox rather than small-pox. Several individuals had experienced a severe variolous fever without any eruption having appeared, while others had the eruption with little or no fever. The eruption itself varied in quantity from one pustule to a number that was in some instances uncountable. By a letter which I received last evening from Mr. Gibson, I learn that the disease is still on the increase. One more instance has occurred of its having attacked a boy who had previously passed through small-pox, and one where it has attacked for the second time a lad who had previously passed through the cow-pock. In some of those who have neither undergone cow-pock nor small-pox, the disease continues, Mr. Gibson informs me, to exhibit the symptoms which have been regarded as characteristic of chicken-pox. But I forbear entering more minutely into details, as I am not without hopes that that gentleman may himself be induced to lay before the public an account of this epidemic as it has presented itself to his observation.

I have been led to believe, that it might be useful to circulate among medical practitioners, the following queries; definite answers to which could not fail, I conceive, to remove much of that disagreeable uncertainty which exists

at present, with regard to the several points to which these queries relate. They have not, as to some on a first perusal might appear, been hastily drawn up, but are, as well as the conclusions contained in my former letter to you, on which they are founded, the result of much observation, reading, and reflection. I have only to repeat, that I shall be obliged to such of your readers as have had occasion to attend in a particular manner to varioloid diseases, by their communicating to me, through the medium of your valuable journal, or otherwise, any information which may tend to throw light on the different subjects of these queries. I may remark, that, in tracing the history of chicken-pox, it is particularly desirable that it should be accurately ascertained in what situations and seasons it has appeared only as a sporadic, and in what as an epidemical disorder.

Query 1st. Have you ever had occasion to see Chicken-pox prevailing epidemically, without cases of Small-pox occurring among them?

2d. Have Chicken-pox appeared to you to attack those who have not had either Small-pox or Cow-pock, as frequently as those who had passed through these diseases; and have you remarked any difference in the appearance of the eruption in these three several classes of patients?

3d. Have any examples occurred in your neighbourhood of persons having had the Small-pox twice? and did it appear, in those instances, that the disease was less severe in its second than in its first attack?

4th. Has a Varioloid disease occurred to your observation in persons who had passed through regular Cow-pock Inoculation; and in the instances in which it may have occurred, whether has this disease appeared to you to resemble more Chicken-pox or Small-pox?

5th. Has this Varioloid disease, when it has attacked those who had not been vaccinated, proved in any instance fatal?

6th. What were the usual symptoms of this disease in those who had not passed through Small-pox or Cow-pock? Were they those of Small-pox, or of the disease which has been termed Chicken-pox?

7th. In what proportion of persons attacked with this disease who had been vaccinated or variolated, has it proved fatal?

8th. Have you had occasion to see any instances of modified Small-pox, or the disease which has been termed the Chicken-pox, occurring oftener than once in the same individual?

9th. Does the general description which I have given of the Varioloid disease, in the three different classes of persons whom it has attacked in Edinburgh, agree with that of your observation; or in what respect does your observation differ from mine?

10th. Are you acquainted with any facts which tend to disprove the hypothesis, that Small-pox, Chicken-pox, and Modified Small-pox, may all arise from one and the same contagion?

I remain, Dear Sir, your's truly,

JOHN THOMSON, M. D.

5, GEORGE STREET, 15th October, 1818.

P. S.—Since sending you the above letter, I have received, among several valuable communications on the subject of Varioloid Diseases, one from Dr. Mudie of St. Andrew's, containing a particular account of an eruptive disease which prevailed at that place in the end of the year 1817, and beginning of 1818, resembling in every respect, that which has lately occurred in Edinburgh; and accompanied by a document proving incontestably, that the idea of variola and varicella arising from the same contagion, had been forced upon Dr. Mudie by observation, and distinctly expressed by him in a letter to Dr. Macfarlane of Perth, dated 15th April, 1818.

J. T.

5, GEORGE STREET, 17th October, 1818.

No. II.

EXTRACT from "An Account of the Eruptive Diseases which have lately appeared in the Military Hospitals of Edinburgh, both naturally and after Inoculation: Communicated in a Letter to Dr. Duncan, jun. By JOHN HENNEN, Esq. Deputy-Inspector of Military Hospitals for North Britain."

CASE I.—WILLIAM WRIGHT, 26th regiment, aged 21. May 14th. Two days since, symptoms of fever showed themselves, and this morning there is an eruption on the face and breast. At present the skin is hot and dry; his pulse 100, and pretty full; tongue white, thirst, and anorexia; bowels costive. The eruption consists of distinct papulæ, with inflamed bases, and is principally confined to the forehead, sternum, and back.

Sumat protinus submuriat. hydrarg. gr. vi. et post horam sodæ sulphatis ʒj. Diet, spoon.

15th.—Febrile symptoms are more moderate; the papulæ have become vesicles, and possess all the characters of varicella.

Repet. medicamenta, et hab. pro potu commune solut. potassæ supertart.

16th.—Skin more natural; pulse 90; thirst less; slept well, and feels much better; one or two of the vesicles are ruptured.

Contin. solut. potassæ supertart.

17th.—Pulse and skin natural; appetite returned, and he feels in every respect well; with the exception of one or two, the vesicles have all ruptured, and formed crusts.

Omitt. medicamenta. Half diet.

18th.—In every respect free from complaint. Discharged.”

“CASE II.—Before giving this case, I must premise, that, as the child was not an hospital patient, no regular or daily notes were taken of his disease; but to the fidelity of the general outline I pledge myself, as both Dr. Thomson and I made the most minute inquiries from the parents, who are both intelligent persons, and verified them by our own observations.

THOMAS WILLIAMSON, aged 7, had been vaccinated by the surgeon of the 72d regiment, in Ireland, in the year 1811. On the 17th of May, a day which the mother perfectly recollects as having been Sabbath, this boy first appeared ill. On the 20th, in the afternoon, I first saw him with a pustular eruption on his face, consisting of about thirty very perfect but small pustules, and about the same number of more imperfect vesicles on his body and legs, the greater of which part, the mother told me, had come out during the preceding night and that morning. He had very smart fever, with pain at the epigastrium on pressure, but no vomiting, and his eyes were considerably suffused.

I certainly took the case, from the appearance of the *pustules*, and from small-pox being in the house, for an instance of modified small-pox, and mentioned it to Dr. Thomson that evening. He saw the child with me on the 21st; and, by referring to the date of the arrival of Wright (Case No. 1.) in hospital, and from the appearance of the *vesicles* on the child's legs, as well as from the eruption having been increased by *fresh crops coming out in succession*, according to the mother's report, he was of opinion, that however strong the resemblance might be to modified small-pox at the first glance, yet from a consideration of all the circum-

stances of the case, it should be considered as one of varicella. I did not see this child again, being employed on other duties ; but by the 24th, the ensuing Sabbath, all the pustules and vesicles were dried up, and the child went to play as usual. The treatment consisted of an occasional purgative, acid diluents, and cool air.

His brother, the only other child in the house, who had been vaccinated eleven years ago, when three months old, escaped all disease whatever."

"CASES III. and IV.—Had I entertained the most remote idea of the interest which the following case would have excited, it should have been kept with the most scrupulous minuteness. But neither Dr. Thomson, who is in the constant habit of seeing my family, nor myself, considered it as any thing else than a severe case of chicken-pox ; and some other medical gentlemen, who saw the boy, were of the same opinion. I can undertake, however, to assert, with perfect confidence, that the general outline, and the more minute particulars, as far as they go, are perfectly correct ; for although the facts were not noted day by day at the bed side, they have been taken while the impressions were yet recent in the recollection of a fond mother, accustomed to the diseases of children, assisted by the memoranda made by myself, and compared with the observations of others. The original account was, at Dr. Monro's request, transmitted to him on the 18th of June, only nine days after the first attack of the disease ; and I shall transcribe the very words in which it was conveyed to him.

"MY DEAR SIR,

"I was sorry that I was from home, on public duty, on Sunday last, when you and Mr. Bryce called at my house. I only returned from Northumberland

last night, and I lose no time in giving you the particulars of my son's case.

On Tuesday, the 9th instant, he returned from school, about four o'clock in the afternoon, complaining of an intense headach and pain in his right side. His pulse was nearly 100, hard and bounding; his skin hot, dry, and rough to the touch, and somewhat inclined to redness; his eyes suffused, and his cheeks very much flushed; his tongue was moist, and rather redder than usual, particularly in the centre. The pain of his right side was considerably increased by pressure; but I was not sensible of any enlargement of the liver, and at first attributed his complaint to a blow on that part by some of his school-fellows of his own age, (about eleven,) particularly as there were marks of tears on his cheeks. I found on examination, however, that this was not the case; but that he had been seized at the grammar-school, in the morning, with intense headach, and had been so unwell at the writing class as to be unable to continue his business. On further examination I found, that in the morning before he went to school, although the weather was unusually warm, he had complained of cold and sleepiness, and did not eat his breakfast. This was in some degree attributed to his having walked out the evening before to Duddingston, to visit the family of a friend, and not having returned before dark.

When I saw him at four o'clock in the state above described, I did not particularly recollect that his younger brother, a boy of about eight years old, had had a very slight eruptive complaint, preceded by a degree of fever scarcely perceptible. The eruption consisted of a few detached papulæ, one only of which became vesicular. It was considered as varicella; a complaint under which the child of the nurse in the hospital, close to my house, had laboured a few days before, which it was supposed he had

caught from a soldier who had been in the hospital under that complaint some time previous, and with which another soldier then in the hospital was supposed to be affected. The disease of this last person (Case V.) has, however, since been ascertained to be small-pox occurring a second time, as there is every reason to suppose, both from the report of the man, and from the marks of that disease which are very apparent on his face, breast, and back.

My son, immediately on his arrival from school on Tuesday, was bathed in tepid water, and put to bed; and I administered to him a bolus, containing four grains of calomel, which, before night, produced several copious stools, consisting of highly offensive bilious matter. He passed, however, a most distressing night, being watchful and delirious.

On Wednesday, his skin still continuing extremely hot, he was occasionally sponged with vinegar and cold water. He was plentifully supplied with lemonade and orange juice, and in the evening his calomel bolus was repeated.

That night he never slept, and was highly delirious, in-somuch that I was about to put leeches to his temples, when, on Thursday morning, I perceived a papular eruption beginning to appear upon his feet and around his ankle joints; it then began to appear about his wrists and fingers, and in circular clusters on the inside of his thighs, (the clusters about the size of a half-crown piece,) and then spread to his face, and soon almost covered it, particularly affecting his eyelids. As the eruption spread, his skin, which had continued excessively hot, grew cooler and more soft, and the pain of his head, which had been most urgent, began to abate; its heat, which had been intense, moderated, and he became perfectly collected. Before Thursday evening some of the papulæ became distinctly vesicular, the vesicles being full, hemispherical, without any depression, and containing a watery fluid. They were pretty thickly spread

over his face, hands, legs, and thighs, and there were a few on his body, but none upon his breast. His principal complaint on Thursday night was intense itching, and he was very restless and somewhat delirious that night. From this day to the present date he was seen by Dr. Thomson.

On Friday morning I found his skin much cooler; his tongue clean, but still rather more red than natural, and the vesicles prominent and full of watery fluid; the intervals occupied with the red papular eruption. His bowels being costive, he had ʒij. of Epsom salts, which purged him freely.

On Saturday all the appearances were the same; and on this day I took six charges of limpid fluid from the vesicles, for the purposes of experiment.

On Sunday there was little change, except that the fluid in the vesicles became thick and yellow. This day he was seen by Dr. Duncan, junior. Towards evening the pustules began to dry up in many places, and the papular eruption to scale off, giving an appearance to the skin as if it had been sprinkled with reddish half-dried jelly.

On Monday he was seen by yourself and Mr. Bryce.

On my return home last night, (the 17th,) or the ninth night of his illness, I found him better in every respect; no fever, and nothing but the marks of the eruption remaining. I should have mentioned, that a ptyalism came on on Thursday, and that a pustule formed on the inner part of the globe of his right eye, and a few very small ones on the margin of the lids; all these have now disappeared.

This boy was vaccinated by myself when three months old, and I had every reason to be satisfied with the genuineness of the matter. He has often since been exposed to variolous contagion in Spain, France, and Portugal, and particularly last year at Portsmouth. The nature of his disease, and its name, I shall not presume to offer any

opinion upon. The treatment consisted of the two calomel purges, and the solution of Epsom salts above-mentioned, of cooling acidulous drinks, and of frequent sponging with vinegar and cold water; the tepid bath having been premised on the first attack. His room was kept as cool as possible, and his bedding consisted of a single sheet and light coverlet.

I shall be most happy to give you any further information upon the subject, either as it may refer to my son, or to the results of the experiments with the lymph taken from him. Believe me, my dear Sir, very truly yours,

J. HENNEN,

Deputy Inspector of Hospitals.

Queensberry House, June 18, 1818."

"CASE V.—JAMES STERLING, 74th regiment, aged 19, June 7th, was brought to hospital last night, when he complained of febrile symptoms which had appeared five or six days before. As nausea was a very prominent symptom, on his admission he was ordered an emetic, by the operation of which much bilious matter was evacuated. To-day he complains much of headach, and a sense of being bruised in his limbs; his skin is hot and dry; the pulse 110, and rather small; he has much thirst; his tongue is much loaded, and his bowels are costive.

Sumat calomelanos gr. vj. et post horam sodæ sulphatis
3j.

Habeat solut. potassæ supertart. pro potu commun.

8th.—Medicine operated well. He feels lighter, but still complains much of his head and limbs; the face is much flushed; eyes somewhat suffused; skin very hot and dry; pulse 106; much thirst.

Affusio frigid. Sumat calomel. gr. viij. et cont. solut.
potassæ supertart.

8 P. M.—Felt much relieved of the headach and heat of skin after the cold affusion; the pulse also come down to 90, and at present is not higher; the skin is also cool, and thirst less.

Sumat pulv. antimon. gr. vi. Pediluvium.

9th.—He passed a tolerable night, but did not perspire, nor was he hot. Headach quite gone; pulse 72; thirst much less; tongue not so much loaded; bowels freely opened. He has an eruption of papulæ on the face, trunk, and extremities; which, did he not bear marks of variola, might be taken for that disease. It is probably varicella.

Contin. potus supertart. potassæ.

10th.—Papulæ more numerous and prominent; febrile symptoms fully as moderate as yesterday.

Sumat calomel. gr. vi. Contin. potus.

11th.—Passed rather a restless night, and feels some return of his headach to-day. Pulse 80, and soft; tongue still loaded, but not parched; little thirst or heat; bowels were not opened yesterday. The eruption is more numerous, collected in several parts of the body into confluent circular patches. On the apices of each of the papulæ, pearl-coloured vesicles have formed, which are in some instances depressed in their centre, in others acuminate; bases but slightly inflamed.

Sumat sodæ sulphatis ℥j. Cont. potus acidulat.

12th.—The eruption is more numerous, but not altered in character; the fauces are inflamed, and studded with vesicles of the same kind as those on the skin. He passed a bad night; bowels not yet opened; pulse calm; heat moderate.

Sumat calomel. gr. viij. et post horam magnesiæ sulphat. ℥i. Utet. gargarism. astring.

13th.—Passed rather a better night, but complains of a good deal of smarting from the skin; face is rather more

flushed, and eyelids tumid ; bowels have been freely opened ; the eruption is more prominent, and the contained fluid has acquired a yellowish colour ; the bases also are more inflamed.

Contin. potus acidulat. et si calor supra modum surgat, ablutio frigid. adhibend.

14th.—He felt considerable relief from being sponged over, which was twice done. He passed rather an uneasy night, but the pulse is calmer than yesterday ; the skin cooler, thirst less, and he has some return of appetite. Some of the pustules on the face have begun to form crusts ; on the extremities they are still entire and turgid.

Habeat mistur. salin. effervescent. ter quaterve in dic.

15th.—Passed rather a sleepless night ; but, he says, he is much better to-day. The skin is cool ; pulse calm and moist ; appetite has returned. His face is not so red, nor so much swelled ; most of the pustules on it have formed crusts. On the body and extremities the pustules are very large, globular, and quite turgid ; none of them have yet formed crusts.

Contin. gargarisma, et si alvus non ante noctem descendat, habeat calomelanos gr. vi.

9 P. M.—As he complains much of smarting pain from the pustules, and has had restless nights, an anodyne may be administered ; bowels opened.

Sumat tinct. opii gtt. l.

16th.—Slept well, and says he feels much easier to-day. Pulse is 100, probably in consequence of the anodyne, but he has no headach or thirst. The eruption has made little progress since yesterday.

Contin. potus. Omitt. gargarisma. Rept. haust. anodyn. h. s.

17th.—Passed a good night, and makes no complaint, unless from the smarting of the skin. His tongue is a lit-

tle white, but moist ; he has a good appetite, and his bowels are open ; pulse 90 and full. Most of the pustules on the face have assumed an opaque amber colour, and quite a horny feel ; on the other parts of the body they are still of a pustular appearance, but very large, and here and there coalescing.

Contin. potus. Repet. haust. anodyn. vespere.

18th.—Passed a good night, and makes no complaint. Many of the pustules on the limbs have discharged their contents without forming crusts ; in others the matter seems to undergo a gradual inspissation and change of colour, so as to become, like those on the face, horny scabs.

No medicine. Vespere repet. haust. anodyn. et descendat in baln. calid.

19th.—Most of the horny scabs came off in the bath last night, leaving fleshy-looking tubercles on the skin. The other pustules have discharged their contents, leaving the thin cuticle as a loose bag behind them.

Adeat baln. calid. Omitt. anodyn.

20th.—Bowels are costive, and he passed rather a sleepless night ; but in other respects he has no complaint. No alteration since yesterday in the appearance of the eruption.

Sumat olei ricini \mathfrak{z} j. Repet. anodyn. h. s.

From this period this man gradually recovered ; and he now, August 10th, exhibits numerous pits of the recent disease, which are very easily distinguishable from those left by his original variolous attack."

No. III.

"CASE XII.—JOHN REDMOND, aged 21. July 7th. Complaints of pains in the abdomen, and about his loins, with

headach, heat of skin, and thirst. Two days ago he bathed in the sea, when he was seized with cramps, and was taken out of the water nearly in a state of insensibility.

Sumat. pulv. doveri, gr. x. ter. die.

8th.—The pains of abdomen and loins continue. He also complains of pain of his chest; pulse full, and about 90.

Mitr. sanguis ad ℥xxx.

9th.—This morning an eruption of small spots, many of which are vesicular, and resemble the variolous eruption, has appeared generally over the body, but more particularly on the face. Says his head is light, and that he has much thirst: pulse 90; tongue white; belly open.

This patient has been living in the same barrack-room with the child Hughes, who was inoculated from Master Malcolm Hennen, under the conviction that his disease was varicella; but of the real nature of which, there has since arisen much occasion of doubt; and there still exists a difference of opinion, whether it ought to have been considered a case of small-pox, modified by previous vaccine disease, or a case of varicella. The patient has a number of cicatrices on the breast and other parts of the body, resembling those left by small-pox. He says that they were produced by that disease, which he contracted when about seven years old from three children who were his play-mates, and who had the variolous disease by inoculation. He also says, that about five years after that period, he lived in the same house with three children during the whole time they laboured under variola from inoculation, and that his intercourse with them was unrestricted.

Bibat pro potu commune solut. supertart. potassæ.

10th.—The eruption has become more numerous, and the vesicles in general are fully formed. Temperature of the skin moderate, with moisture.

Continnr. potus.

11th.—Eruption is still vesicular; fresh specks, which almost from the first contain lymph, appear to come out; but in order to determine this with more certainty, several small spaces in the body have been encompassed with a black line, and the number of vesicles in them counted.

Continr. potus.

12th.—The vesicles have become larger; they are in general of a flat shape, with depression in the middle; their contents are transparent lymph. In some places they have become confluent. There is some redness of the eyes, with stiffness and swelling of the eyelids.

Continr. u. a.

13th.—The face and eyelids are much swelled; some ptyalism; belly open, much thirst, pulse moderate.

Continr. potus.

14th.—On the forehead and face the pustules are acquiring a yellowish crust, and on the body and extremities a few of them have a bluish hue, and appear as if a crust were beginning to be formed in the depression in the middle of the pustules. There is much swelling of the face, and the eyelids are closed; ptyalism is very profuse; pulse full, and about 80; heat of skin considerably higher than natural, and communicates a pungent sensation to the hand; no stool since last night.

Lavetur corpus aq. frigidâ. Sumat. nat. vit. 3j. in aquæ 3vi solutam, partitis vicibus.

Vespere.—The hands begin to swell.

15th.—Salts operated freely. He has taken his breakfast with a good appetite; ptyalism and swelling of the face still considerable; but the eyelids are not closed as yesterday. A more distinct yellow crust has now formed over the face, by exudation from the pustules on it; pulse about 90; temperature moderate. On the whole, the symp-

toms are very remarkably diminished in violence since last visit.

On this day ten lancets were charged with the matter by Mr. Hennen; the matter in some part of the eruption was found to be purulent, in others to be pure lymph.

Vespere.—Temperature in the axilla 102; much general uneasiness.

Lavetur corpus aquâ frigidâ.

16th.—One of the hands more swelled this morning. Swelling of the face as before. Ptyalism less. The exudation continues on the face; but on the body, the pustules are much fuller, and seem distended to bursting, the depression in their centres being in consequence obliterated. The contained fluid is purulent. Pulse 106: heat 100. Made three attempts to go to stool in the night, but ineffectually. The redness, which had been around the bases of the pustules, is much less than it was, and the skin between still retains its natural colour.*

Repet. nat. vit. 3i.

Vespere.—Says he feels much easier, and, as he expresses it, lighter. There is less swelling of the face than in the morning, and there has scarcely been any ptyalism through the day. The redness of the bases of the pustules evidently diminishes, and the interstitial skin is of its natural colour. Temperature in the axilla 99; pulse 100. Asks for animal food.

17th.—Passed a good night. His physic operated twice. Pulse 100; heat 97. He complains of hunger, and asks for animal food. The swelling of the face has completely gone down; that of the hand is nearly gone, and there ap-

* The report of this day, and of the 17th, 18th, 19th, and 20th, was made by me, in conjunction with Mr. Johnston, and the other gentlemen already mentioned.

pears none in the feet. There are few of the pustules on the face that are not crusted ; those on the trunk and limbs have not yet formed crusts, but, in general, are of a more chalky hue than yesterday ; a few, however, are shining. The skin, in the spaces between the pustules, is nearly natural, (it never had been of a damask rose red.) Traces of inflammation still remain about the bases of the pustules. The matter, both in the chalky and shining pustules, is purulent, and the bottoms of both are of a florid red, as found on removing the skin which contains the matter. On inspecting minutely the pustules on the trunk and limbs, although they seem to differ in point of size and confluence, they all seem to keep pace in point of maturity. On the penis and scrotum the pustules have dried up into scabs of a blackish-brown colour, while on the face the crust is yellowish. No fresh crops of eruption have appeared since the 11th, and what appeared then is not now to be distinguished from the first that came out. Some pustules, observed by Dr. Duncan and Mr. Hennen, on the tongue, which appeared on the 11th, are still visible ; but some, observed by Mr. Johnston on the palate, cannot now be examined on account of the soreness of his mouth. One pint of broth ; two ounces of wine, diluted with water, through the day.

17th.—*Vespere*.—No change since morning. Is free from fever.

18th.—Is to-day much better in every respect. Pulse 80 ; heat in the axillæ 99. Some thirst, but his tongue is moist. Bowels regular, having had a natural stool this morning. Swelling of the face entirely gone. All of the pustules on the face are now crusted, and also some at the roots of the hair. On the trunk and limbs the crusting has not commenced ; but on these parts some of the pustules have burst, and are covered with shrivelled skin ; others

are also covered with shrivelled skin, but have not burst, and the matter seems to be absorbed. Some few minute pustules have come out since yesterday's visit, principally on the abdomen and lower extremities.* Still some swelling of the hands, and the feet more swelled than they appeared yesterday. The scabs on the penis, and scrotum are as yesterday; and, on retracting the glans, about twelve pustules are observed. A bruise on his right leg, which he had received a day or two before he came into hospital when he was bathing, is now crusted over, having had some pustules formed on it.

Vespere.—Continues free from fever, but complains of watchfulness.

Sumat extract. opii gr. iii.

19th.—Convalescence proceeds, pulse 80; heat 96; the crusts on the face are falling off; on the body also, and partially on the legs and arms, the pustules begin to disappear; the progress of disappearance is as follows:—the turgid shining pustule either bursts, and the contained fluid flows out, or it gradually sinks, and the coat of the vesicle becomes shrivelled from the absorption of the contained fluid. The papulæ that came out yesterday have not increased in number; they are very minute; and many of them now contain a fluid like the larger pustules.

Vespere.—No alteration since morning; watchfulness continues.

20th.—Convalescent, pulse natural; heat 99; some of the crusts on the face have fallen off, leaving behind them small fleshy tubercles as their bases. On the body, the progress of disappearance goes on as described yesterday, and

* Sutton, Dimsdale, and the older inoculators notice the same. Dr. Huxham mentions his having occasionally observed a second crop. See his Account of the Anomalous Small-pox at Plymouth in 1724. *Phil. Trans.* vol. xxxiii. p. 380.

the parts from which the pustules have been removed, either by bursting or by absorption, are of a brownish mahogany colour. On the arms some crusts are formed similar to those on the face; in other places, the disappearance of the pustules goes on as in the body; where he had been bled, one of the pustules has left a deep but small ulceration. On the legs and thighs the progress of disappearance is more slow; some very few of the pustules have assumed the appearance of bullæ; and some of them, particularly on the feet, have acquired a more firm and solid appearance, probably from the inspissation of the contained fluid. On the soles of his feet and palms of his hands, where the cuticle is hard, the pustules have not burst nor formed crusts, and they appear beneath the transparent cuticle, shining through as it were, of a dark brown colour.

This man has never complained of cough during the whole of his disease; his urine has not been bloody at any period of the complaint. The few secondary papulæ which appeared on the 18th have made no progress.

Baln. tepid.

21st.—Did not sleep last night, owing to his not having taken his opium; many of the crusts have fallen off from the face, but there does not appear to be any pits formed in the skin. The greater number of the pustules in the trunk of the body are dried up, and the cuticle of each formed into a firm brown crust; some of the pustules still contain a purulent fluid in the thighs and arms, but they are very flaccid from the absorption of their contents. Has a good appetite; functions natural.

Repet. opii gr. iij.

22d.—Slept well, and feels in good health this morning. A few pustules only remain on the feet and hands; in every other part they are dried up.

23d.—Has a phlegmon on the right arm.

Cataplasm. emoll.

26th.—Gains strength daily.

28th.—Continues to recover strength; appetite good, functions natural. There is a small phlegmon on the right leg, similar to that on his arm.

App. cataplasm.

29th.—Phlegmon opened; crusts continue to fall off; is perfectly well, but complains that he does not sleep.

Cont. cataplasm. Adeat baln. calid.

31st.—Convalescent.

No medicine.

August 11th.—Discharged with several recent pits on his face and body, not to be distinguished from those of small-pox."

"CASE XIII.—JOHN DELANY, aged 20, July 12, complains of headach, with pain of his back and limbs, and much lassitude; pulse frequent, skin rather hot, much thirst, belly costive. He awoke with the above complaints last night, and ascribes them to his having caught a cold on the 6th, when he got wet and remained in his wet clothes.

Sumat pulv. antimon. gr. vi. calomel gr. viij.

13th.—Physic operated well, and before bed-time he felt much relieved from his headach. He did not sleep, and the headach, with general uneasiness, has increased this morning; much thirst; skin hot; pulse 100; has a slight cough.

Mitt. sanguis et sumat calomel. gr. viij. c. pulv. antimonial. gr. iv.

14th.—An eruption appeared about six o'clock this morning, most numerous on the face, and very thinly scattered over the trunk, arms, and limbs. Each speck consists of a minute vesicle on an inflamed base, which feels hard

under the finger. The headach and febrile heat are much relieved.

This patient has a number of cicatrices, like those left by small-pox, over the trunk and limbs, but none on the face; says he had small-pox when a child, and was always told these were the marks left by them.

He used to nurse and amuse Serjeant-Major O'Neil's child, (No. 6.) when labouring under the eruption arising from inoculation of a disease, the nature of which is at present doubtful.

No medicine.

15th.—Temperature and pulse moderate; belly open.

Vesperc.—Has considerable general uneasiness; heat about 99°.

16th.—Passed the night without sleep; is at present almost free from fever; tongue white; pulse 80, temperature 97°. The vesicles are increased in magnitude, and in the greater number the shape is globular; in a very few the central depression appears. On the forehead, nose, and cheeks, the vesicles have not each a separate inflamed base, but appear to be placed upon a common base, like herpetic vesicles. On these parts, too, they are confluent; on the body, limbs, and arms they are more distinct, and each has its separate circumscribed base.

17th.—Says he has some headach this morning; tongue white; no appetite; temperature and pulse nearly natural. Passed the night without sleep. The eruption on the face begins to get a yellowish hue, but without any exudation. In two or three vesicles on the limbs and arms, the central depression is occupied by a livid spot. Generally, the vesicles have increased in size, and the flattened shape and depressed centre have become more conspicuous than yesterday; they are, however, extremely various in size, and in some parts a small red point can be observed, as if the

first appearance of the eruption in the skin. The eyes are slightly inflamed, and the eye-lids considerably swelled. The inside of the lips and the palate are seen studded with a great number of minute white points like suppurated papillæ.

Vespere.—Temperature of the skin and state of the pulse nearly natural; complains of headach, and evinces much intolerance of light on the approach of a candle. He seems to labour under a depression of spirits, and apprehension of the issue of his disease, which is by no means warranted by its present appearance.

18th.—Says he passed a sleepless night. It ought to have been noted before, that ever since his admission he has complained of watchfulness. Fresh eruption continues to appear on the trunk and limbs, where the first pustules are but moderately distended, contain lymph, and have still the central depression. On the forehead, nose, and cheeks, a greater number of the pustules have acquired the brownish-yellow colour, and in a few exudation has taken place. Temperature in the axilla 97°; pulse 80; tongue whitish.

Vespere.—Is restless and extremely irritable, with a painful degree of sensibility in the eyes to light.

Sumat opii gr. iij.

19th.—Slept well during the night; pulse is higher than last night at the time the opium was exhibited, being 120; heat 100°. He complains of headach, thirst, and heat of skin. The exudation on the face increases; the pustules on the trunk and extremities are more prominent and of a more yellow colour than yesterday; the bases are of a less vivid red, and there are fewer central depressions. There is more swelling of the face, and he has considerable redness of the eyes, and hoarseness. The skin between

the pustules is almost natural in its appearance, unless on the arms, where it is of a rosy red.

Vespere.—Pulse is 120, and he is very hot and restless.

Repet. pilul. opii gr. iij.

20th.—Slept tolerably, and has no uneasy sensation to-day, unless what arises from the skin. His pulse is 120; heat in the axilla 99°, and he has considerable thirst.

The eruption generally is more of a straw colour, the pustules are larger, but mixed with many small points of the same character. The exudation in the face gives the appearance as if broken down jelly were strewed over the pustules. The face is not more swelled since yesterday, and there is no swelling of the hands or feet. There is more hoarseness, and difficulty of swallowing.

21st.—Did not sleep last night; has some ptyalism to-day; rather less swelling of face; the eyes are still red, and very sensible to light; has much hoarseness, and slight cough; hands and feet are swelled; the pustules over the trunk and limbs are much distended, and begin to have a yellowish hue; belly open; temperature in the axilla 96°; pulse 98, and full; less thirst.

Vespere.—Pulse full; skin rather hot, but it is bedewed with moisture; feeling of uneasiness not increased.

Sumat opii gr. iij.

22d.—He is at present in a calm natural sleep; the pulse 115; temperature in the axilla 98°. A number of the crusts have dropped off from the chin and lower part of the face, leaving a considerable degree of roughness and elevation of the cuticle on which they were situated. The rest of the face is still partly covered by the crusts formed by the exuded fluid, and partly by distinct unbroken pustules. A few of the pustules on the breast have become flaccid, but the majority are still greatly distended; the skin on the breast and abdomen, in the interstices between the pustules,

has less redness, and begins to acquire a natural colour. On the arms, legs, and thighs, there is still a good deal of inflammation of the skin, and some swelling of the hands and feet continues. On the arms and hands several vesications have arisen, including one, two, or more of the pustules, containing a transparent brownish serum, in which the opaque matter of the pustule floats.

23d.—Slept indifferently. Complains of soreness of his back; has some thirst; pulse 88; temperature in the axilla 97°; belly costive; appetite still bad. Many more of the pustules on the trunk have become empty and shrivelled, and those on the extremities begin to be less distended. The large serous vesicles that appeared yesterday on the hands and arms, have fallen down, and are now nearly empty. The interstitial inflammation is almost quite gone, except from the hands and arms, in which there is still some swelling.

Sumat sulphat. sodæ ℥j. et opii gr. iij. h. s.

Vespere.—Complains much of debility, and pains of his loins and nates.

24th.—Slept well; and his general feeling is much more comfortable this morning. Pain of loins and nates gone; pulse 80; temperature in the axilla 97°; has an appetite, and wishes to have a piece of chicken. A greater number of the pustules have become distended with a serous fluid on the arms and legs, so as to resemble pretty large vesications; several of them have burst. The feet still continue much swelled; the swelling of the hands is considerably diminished. Almost all the pustules on the face are converted into thick crusts; those on the trunk are in general shrivelled and empty, while those on the legs and arms are still distended; but, as already observed, their contents are greatly mixed with a serous fluid.

Vespere.—Seems very easy and composed. Pulse and temperature nearly natural.

Repet. opii gr. iij.

25th.—Slept well, and is free from fever; pulse natural; temperature 97°. His appetite improves, and he wishes for milk to breakfast. Almost all the pustules on the arms have either been absorbed, or such as were distended into blebs have burst, and are shrivelled. A few flaccid pustules still remain on the hand. All those on the trunk are dried up. They still continue on the thighs and legs, but are much less distended than formerly. In many of these the opaque fluid they contain is mixed with serum, and some of the largest blebs have burst. The swelling is quite gone from his hands, and is also much diminished on the feet.

Vespere.—No increase of fever, or change of symptoms.

Repet. opium u. a.

26th.—Passed a comfortable night; feels very well this morning. Pulse and temperature natural; appetite good. The pustules on the lower extremities continue to be either ruptured or absorbed; few remain anywhere else; the whole surface is extremely filthy from the crusts of the ruptured pustules, and the tenderness of the skin prevents the necessary means for cleanliness being used.

Adeat baln. tepid. et cont. pilul. opii h. s.

27th.—A good number of pustules still remain on the lower extremities, but in a very flaccid state; the feet are still somewhat swelled. His appetite increases, and his strength improves. Functions natural.

Contin. opium h. s.

28th.—Remaining pustules on the feet are becoming crusted; swelling of feet diminished; appetite good; bowels costive; slept ill.

Habeat sodæ sulphat. ℥j. Cont. pilul. opii h. s.

29th.—The crusts are falling off all over the body, and the parts where the matter had been absorbed are desquamating; they leave slightly elevated tubercles. Swelling of the feet altogether gone; pulse, heat and bowels, natural.

Adeat balneum calidum. Cont. pilul. opii.

31st.—Gains strength slowly; his appetite is not so keen as it was two days ago. Pulse, heat and bowels, are, however, natural. He complains that the half diet is too heavy for him. There is some inflammation of the conjunctiva of the left eye, with some appearance of iritis.

Omitt. pilul. opii. Cap. sulph. sodæ ʒj.

August 1st.—Convalescent; appetite continues to improve; bowels opened by the salts; inflammation of eye diminished.

Cap. calomel gr. iv. Foveat. ocul. aq. calid.

3d.—Iritic affection gone; two or three small ulcers on the cornea; gummy exudation from the tarsi. He is otherwise convalescent.

Cont. fatus.

7th.—Eye well. No medicine.

Discharged, with several recent pits in various parts."

"CASE XIV.—EDWARD DEANE, aged 18. July 18th. Was admitted yesterday, complaining of headach, thirst, nausea, and soreness of the epigastrium, with cough. At present the skin is hot; the pulse full, and rather frequent; the eyes heavy, and expressive of languor. The symptoms of yesterday also continue; a few red points appear on the face, breast and arms; and on the summits of some of them, on near inspection, a very small shining vesicle can be discovered. One on the left wrist is more advanced than the others, and of a bluish hue, with a good deal of inflammation of base. He never observed the eruption till pointed out now. He says, that, on the night of the 15th, he had a

rigour, which was followed by the headach and other febrile symptoms mentioned above. He was inoculated for variola when about nine years old, and has a very distinct cicatrix on the arm at the place of inoculation. He has besides many marks upon the body, particularly on the back and loins, resembling those left by small-pox. Says, that he has repeatedly been with people labouring under small-pox with impunity since the time of his inoculation. He has been living in the barrack-room with the child M'Dermot, who was inoculated from Mr. Hennen's son, and who had an eruption, by some supposed to be variola, by others varicella.

Vespere.—Febrile symptoms continue; temperature in the axilla 103; pulse full, and about 90; belly open.

Lavetur corpus aquâ frigidâ.

19th.—Passed a sleepless night, and complains this morning of headach, heat of skin, thirst, some difficulty of swallowing, and pain in the epigastrium. He has also some cough, and inclination to vomit. Pulse 88; heat in the axilla 101. There does not appear to be any fresh eruption, but the vesicles which appeared yesterday are larger, more transparent, and globular. The fauces are slightly inflamed; and small ulcerated patches, of an aphthous nature, appear on the inflamed part of the membrane lining the throat.

Vespere.—He complains much of cough still. Febrile symptoms are very mild. Some more of the eruption has appeared on the face.

20th.—Passed rather a restless night, but suffers little pain unless from his throat. His pulse is 72; heat in the axilla 98. He has but little thirst; his bowels are open, and his appetite tolerable. His face is now quite studded with an eruption, the greatest part of which is papular, but some are vésicular, with depressed centres; there are

also many papulæ and vesicles of the same sort on the trunk, and a few on the extremities.

The vesicles which first appeared on the wrists, ankles, and feet, are much larger than any of the others, globose, and transparent.

21st.—Slept pretty well. Complains chiefly of soreness of his throat, and headach; pulse 68; temperature in the axilla 98° ; belly open; some thirst. The pain he complained of at the epigastrium is gone. Fresh papulæ continue to appear. There is great diversity in the size of the vesicles and papulæ; some of the former are as large as a split pea, while some of the latter are mere points. The vesicles contain a semi-transparent fluid. There is slight redness of the eyes, and he complains of the light. On examining the throat, the velum palati and uvula are found much inflamed and swelled, and, together with the palate, are thickly studded with small white vesicles. Cough continues.

22d.—He slept some towards morning; the pulse is 75; temperature in the axilla 99° . The vesicles have acquired a white opaque appearance, and are larger than yesterday, but there is still great variety in their size; their figure is also very irregular, and the inflammation at the base of each is unequally diffused, and without sensible hardness. His throat is easier. He complains much of thirst. Eyes red. Face swelled.

23d.—Did not sleep; some thirst; tongue white, but clean at the edges; belly open; face more swelled; cough continues; temperature 100° ; pulse 82. The pustules on the face have thrown out on their surface a gummy exudation of a yellow colour; those on the trunk and extremities are quite purulent, and seem fully distended.

Vespere.—General symptoms, as mentioned in the morning visit.

Sumat. opii gr. iij.

24th.—Slept well. Has no headach; thirst less; cough continues; face and eyelids rather less swelled; no swelling of his hands or feet; heat of his skin 99°; pulse 85. More of the eruption on the face has become covered with the gum-like exudation, and gradually acquires a darker colour. The pustules on the body and limbs have a straw colour, appear perfectly purulent, and are much distended.

Vespere.—Has no increase of fever; feels tranquil, and disposed to rest.

Repet. opii gr. iij.

25th.—Slept extremely well, and is without any uneasy feeling this morning, except what arises from the soreness of the surface; pulse natural; temperature 98°. On the face, many of the crusts have fallen off; others of the pustules are in different stages of incrustation; while a few retain their purulent distended form. On the cheeks, among the pustules that have become encrusted, a number of inflamed papulæ, of considerable firmness and hardness under the finger, are to be observed; which, like the others, are in various degrees of progress, some having acquired yellow suppurated tops, while others appear in their commencement. I am uncertain whether some or all of these are not the tubercular bases from which the crusts of the former pustules have dropped off; but if they are, many of them have again acquired a yellow purulent top. On the chest, some of the pustules have been absorbed, and the cuticular sacs have fallen down shrivelled. The greater number, however, remain distended, and retain their purulent straw colour. Many small papulæ appear intermixed with the more perfect pustules, many of which have the appearance of being in their commencement. On the arms, thighs and legs, the pustules are still distended and purulent. The swelling of

the face is nearly gone, and there has appeared no swelling of the hands or feet.

Vespere.—The hands are slightly swelled; no other change.

Repet. opium, u. a.

26th.—Slept well, and feels himself very easy this morning. Functions natural; appetite good; most of the pustules on the face and trunk are dried, and, on the extremities, are gradually collapsing; a few have burst.

Repet. opii gr. iij.

27th.—Appetite increases, and all the functions are natural, except some degree of costiveness of the bowels. On the face, particularly the cheeks and chin, the small tubercular eminences, formerly supposed to be fresh eruptions, are extremely numerous; and, from their firm structure, and apparently chronic nature, are probably the bases of the former pustules, from which the scabs have been detached. There are none now which have the yellow suppurated top formerly noticed. The pustules on the legs are still pretty numerous, but flaccid, and half empty. The slight degree of swelling which appeared on the hands is quite gone.

Sumat. nat. vit. ζ i.

Repet. opium h. s.

28th.—Tubercles continue the same on the face and trunk. Some of the remaining pustules on the extremities are forming crusts; in others the matter is absorbed, the cuticle falls down, and afterwards desquamates as on the trunk; in others, the cuticle is first ruptured, the contained fluid exudes, and the same process takes place as in those where the matter is absorbed. Pulse, heat, and functions natural.

Omit t. opium.

31st.—The tubercles on the face are diminishing in size,

and leave pits. On the trunk and extremities, where absorption of the contained fluid and desquamation have taken place, there is little appearance of tubercles. He is in every respect convalescent.

August 1st.—Dismissed."

No. IV.

1. *Letter from Dr. Adams, Junior, of Forfar, to Mr. Bryce, on the subject of an Eruptive Epidemic Disease which appeared at that place in 1813.*

"FORFAR, 25th February, 1814.

"SIR,

"As every circumstance on the subject of vaccination, that may tend either to confirm the safety and superiority of the practice, or to weaken the evidence on which it rests as a preventive of the operation of variolous contagion, derives importance from its intimate connexion with the general welfare, and must be particularly interesting to you, I have deemed it proper to direct your attention to certain facts, the occurrence of which lately, in this town and neighbourhood, has created a considerable sensation in the public mind, and no small doubt as to the complete efficacy of vaccine inoculation.

"In the months of October and November last, an epidemic made its appearance in Forfar and its vicinity, which attacked the vaccinated as well as the unvaccinated. That the disease was small-pox, in the cases where no previous inoculation had been performed, the resident practitioners were fully satisfied; but that it was so also in the others, where vaccination had been regularly gone through, they could not, from the difference in the phenomena, bring

themselves to allow. Its increasing prevalence, however, and the circumstance of death having ensued in one or two instances posterior to inoculation with cow-pox, rendered the matter an object of common concern; and, in consequence of a requisition from the Sheriff, a meeting was held of practitioners from the respective towns within the county, where inquiries and deliberation led to a Report, the substance of which is as follows:—‘1st, We find, that, for ‘some months past, small-pox has been prevalent, and does ‘still continue to prevail, in the town and neighbourhood ‘of Forfar. 2dly, That in a number of children, who had ‘been previously inoculated with cow-pock matter, the ‘small-pox contagion has produced a slight disease, marked ‘by the following appearances: For two or three days ‘symptoms of general fever have taken place, followed by ‘an eruption of small pustules, not numerous, and, in a ‘few days, terminating in hard, horny crusts. In no instance has any secondary fever followed similar to that ‘from *small-pox*, nor has the slightest dangerous symptom ‘made its appearance.’

“This certainty involves an opinion, in the history of cow-pox, in some measure new, as it is here implied, that the inoculation with that disease does not afford a perfect protection against the power of *small-pox contagion*, but only goes to mitigate the severity of its attack. From the circumstance of a *specific contagion* being hitherto unknown to produce a *partial effect* in its operation, this opinion derives no support from analogy, and has merely for its foundation the facts now to be mentioned; which, though strong in themselves, are somewhat opposed by others that have taken place since that time, and the point altogether remains yet to be decided by farther observation and experiment.

“I have regular notes of all the cases that have come

under my observation for these three months past, as they were taken down by the side of the patient, and these show in different subjects very various degrees of violence of the affection; but in most the eruptive fever has been severe, as much so, in many, as of the small-pox occurring in the unvaccinated cases. In a number of them, the disease has been ushered in by an unusual coldness and shivering, followed quickly by increased heat of surface, great thirst and vomiting; all have complained of headach, and many of pains over the whole body. Several have been affected with an uncommon sneezing; pulse upwards of 100 in the minute; tongue furred white; and papulæ preternaturally enlarged. Two or three have been delirious; and in as many only have I observed starting of the tendons. Convulsive fits in one; and in a few a degree of coma has prevailed, though not generally; and in a large proportion, an efflorescence, sometimes universal, sometimes partial, resembling that of scarlatina, but appearing more in patches, has immediately preceded the eruption. After three or four days, on the coming out of this, the fever has invariably abated, and but few have afterwards been confined to bed. The papulæ are at first small, hard, and red; they soon become vesicular at top, and have in general a depression in the centre of the vesicle. They increase for a few days in breadth, but especially in elevation; and a small quantity of a dirty-coloured yellowish fluid forms on the apex, while the lower half of the pustule, or rather the lowest third, is still solid, and of a red appearance. In general they are acuminate, but several are quite *flat*—in the severer cases *all*, and *mature fully*—but in none, that I have observed, is the matter so abundant as to spurt out with some impetus on the lancet being introduced; and in the *milder cases* it appears to be contained only in the middle of the pustule.

The number of pustules is in different instances, exceedingly various, from 12 or 20 to several hundreds, and in some so numerous that they could with difficulty be counted. The time which they continue is as little determinate; in some remaining for four days only; in others five, six, eight; and in a very few of the oldest vaccinated subjects, they have staid out until the ninth and tenth day, without in the least diminishing in size. They form hard crusts in going away. Unless on the face, smooth on the surface, semi-transparent, and of a light amber colour; those on the fingers often of a *blood-red*. The whole substance of the pustule, as well its contained fluid as its *cyst*, consolidating to form the crust, and not the matter oozing out, and then hardening. They are firmly adherent to the parts underneath, and remain for a considerable time; falling off, they leave for the most part the surface *elevated* and discoloured. There has been no secondary fever; but in the severer cases, a marked quickness of pulse, restlessness, and other symptoms of irritation, towards the height of the disease; and pits have followed in only six or seven instances. During the eruptive stage, and in the progress of the disease, the throat has been generally affected; and, on inspection, the fauces and tonsils have been found somewhat inflamed, swelled, and covered with a number of small crusts, resembling in colour, form, and size, the pustule externally, but scarcely elevated; and a few of the same are seen on different parts of the tongue. They complain of pain and difficulty of swallowing, and a degree of hoarseness has in several been present; these symptoms generally abating before the eruption goes away.

“ This disease, as now described, has occurred in at least 100 subjects in the town of Forfar, who had undergone vaccine inoculation, and, I may safely say, in half that number in its vicinity. By far the greater proportion

of these have been inoculated by midwives and ignorant persons ; but a considerable number by regularly educated practitioners, and among these, too, many of them the children of the better classes of society, where it is to be supposed every attention to the due performance of the operation, and its ultimate success, would be paid, and the fullest confidence entertained as to the genuineness of the vesicle produced.

“ The cicatrices of forty or fifty that I have examined, are, with the exception of one or two, distinctly discernible and *well marked*. This disease has occurred under the same roof, at the same time with small-pox ; and, in some families, the vaccinated has been first seized with this *spurious affection*, and the child who has never been inoculated with any kind of pox, has fallen sick in a few days, or a week after, and regularly gone through all the stages of variola, and *vice versa*. It is a singular fact, that all the older vaccinated subjects (that is, those in whom the longest interval has elapsed since vaccination was performed) should have suffered most from this disease, and had the most copious eruption ; while those that were inoculated more recently have had it in a much milder degree, and many have not been attacked at all. Out of the whole, there is only one *distinct* instance under 2 years of age, and that without any fever ; while it has been common, in families of two or three children, for the oldest to take the disease, and the younger ones wholly to escape.

“ The facts which militate against this disease proceeding from *small-pox* contagion, are, 1st, Its having occurred, or something nearly similar, in persons who had had inoculated small-pox at a former period of their lives, though there have been very few instances of that kind. 2dly, The result of two experiments which I have made, that cannot, however, be looked upon by any means as decisive.

Matter taken from the pustules of one of the doubtful cases, was inserted into the arm of a woman who had never had small-pox, or been vaccinated. *Small-pox* was not produced, nor did any fever follow ; but, after a slight inflammation, a vesicle made its appearance at the place of insertion, and, in a few days more, two or three pustules were perceived on different parts of the body, resembling those in the case from which the matter was procured. This individual, though she never had the disease herself, yet slept, when a child, with brothers and sisters labouring under small-pox, and it may be presumed was greatly exposed to the contagion from this source, and of course could not be looked upon as a fair subject for such an experiment. Afterwards, matter taken from an unequivocal case of small-pox was introduced into the arm of the same woman. A slight degree of local inflammation and elevation was produced, but without the smallest appearance of vesicle, or any febrile symptoms whatever.

“ About a fortnight ago, I inoculated an infant of 5 months with matter from a case of the spurious affection. The arm inflamed, and three most distinct pustules, or vesicles, followed, marking the places of insertion with a distinct circular areola of a red colour, and extending to the distance of half an inch around these. The pustules increased gradually in size, and were first of a bluish colour, and afterwards became more white, and formed a yellow crust, at first bright, but before it dropped off, assuming a more dusky hue. A pit has followed in the place of the crust ; but though the child was restless for several nights, it could not be said that there was any manifest degree of general irritation ; she took suck as usual, and was as lively as in health. A respectable practitioner from Montrose happening to be here during the progress of the pustule, declared, that the same *appearance* in

a case of inoculation with variolous matter would have satisfied him as to its being a real small-pox pustule, although no general eruption had followed. There was no eruption. I mean to inoculate the same subject with undoubted small-pox matter, as in the case of the woman above-mentioned, and the result, I should think, would assist us materially.

“ I regret that the want of fit subjects, and the universal prejudice that prevails against experiment-making of this sort, must prevent my extending farther these trials ; but I shall anxiously avail myself of every opportunity that presents itself. As the Institution affords more ample means for that purpose, I have inclosed two packets of matter taken from different subjects of this disease, that you may have it in your power, if you think it of consequence, to inoculate with the same ; and I accompany these with a statement of the cases.

“ As far as my information extends with regard to it, this eruption differs in many particulars from the varicella, or chicken-pox ; and, by the account of the parents, most of the subjects of it have had that disease, the marks on some being still visible. Is there, then, any other known affection, besides small-pox, to which the description bears a resemblance ? If it is any other disease, why has it not attacked those who had *small-pox* more generally ? for the few cases (and they were comparatively slight, and in *none* pits over the body from the previous inoculation) cannot be reckoned conclusive. A medical gentleman of a neighbouring town has informed me, that, two years ago, he met with an eruptive disease in vaccinated subjects, at a time when small-pox was prevailing, corresponding to the epidemic that has occurred here ; and, what is more, that he produced the same in some, though not in all cases, by inoculation with variolous matter subsequent to that with

cow-pox; and that he and his brother practitioners considered the disease as small-pox modified by the previous vaccine inoculation. If there can be such a disease as a *modified small-pox by vaccination*, it is rather surprising that it has not been met with more generally, particularly in large cities, as London or Edinburgh, where the variolous influence, I should suppose, in some degree always existed. However this may be, for my own part I am clearly of opinion, that the affection now under consideration *has* proceeded from *small-pox contagion*; and had any impartial observer noted the same circumstances, and compared the vaccinated or *doubtful*, with the *unvaccinated* or *real* small-pox cases, as I have done, he must have been compelled, however reluctantly, to admit a similar conclusion.

“With regard to the cases that terminated fatally after vaccination had been performed, it may be for certain affirmed, that they had not been properly vaccinated. One was a girl of 12, who had been inoculated when two weeks old by a medical gentleman, though not a practitioner. Another was inoculated by a surgeon’s apprentice; and, by account, none, or a very imperfect vesicle followed. The other two by midwives at an early period of the practice, who, it may be presumed, were then ignorant of the distinctive characters of the genuine vaccine disease; and in one of these the parents declared, that no *local* effect whatever was produced.

“It can hardly be supposed, that in all the cases of this *spurious affection* the patients had been improperly vaccinated; those under the care of the regular medical practitioners, I know, afforded the approved proofs of the proper vesicle. But, on the supposition that all have been *spurious*, could that *spurious vaccination* have so far had an influence, as to have rendered the subsequent attack of

small-pox milder, and to have freed that disease of all its danger? If it is concluded that all have undergone *imperfect vaccination*, there are few cases in this part of the country on which any dependence can be placed, as the vaccinators all rely on the same generic marks that have guided the medical men here in their practice, and which are taken, according to Dr. Jenner's instructions, from the appearance and duration of the *vesicle*, the *areola*, the *scab*, and the *cicatrix*. The *test* proposed by yourself is not generally had recourse to in the country.

"To be favoured with your sentiments, and those of the other professional gentlemen belonging to the Institution, on this important subject, and with an account of the result of any experiments that may be made with the matter sent, will be extremely satisfactory to the practitioners here; and I shall be always very ready to supply you with any farther information that you may desire, or that I can communicate, relative to vaccination.

"It may be proper to mention, that, in the course of this epidemic, there has occurred one distinct case of small-pox supervening in a person who had had formerly that disease by inoculation; and that cases of scarlatina have occasionally been met with during its prevalence.— I have the honour to be, Sir,

"Your most obedient humble servant,

"JOHN ADAM, Jun. Surgeon."

"James Bryce, Esq."

"P. S.—Since writing the above, I have received an answer to a similar communication sent two weeks ago to the London Vaccine Establishment; and the opinion entertained by the Director, as drawn from that statement, is, that the vaccination must have been imperfect; proceeding probably 'from one single vesicle only having been ex-

'cited, and this single vesicle having been opened to vac-
'cinate others.' Or, 'If the supposition of imperfect vac-
'cination is groundless,' that we may be assured 'that the
'prevailing malady is not variolous. *Varicella* takes on
'various forms, and may be epidemical among the vaccina-
'ted, while small-pox prevails among others; and the two
'diseases raging at the same time, may account for the
'alarm which has taken place.'

"J. A."

2. *Letter in Answer from Mr. Bryce to Dr. Adams.*

"DEAR SIR,

"I RECEIVED your very accurate and interesting account of an eruptive disease which occurred in your neighbourhood after vaccination, for which accept of my best thanks.

"The disease you describe is exactly similar to a few instances which I have observed here, occurring under like circumstances, and which, I have no doubt, is the disease well known in this and other countries, long before vaccination was practised, under the name of the *horn-pock*, and *steen-pocken*, *stone-pock*, &c. This disease, from being generally very slight, has been little attended to by medical men, and is scarcely more than mentioned by authors. It is said, however, to have prevailed chiefly when small-pox was prevalent, which marks some connexion between them, and, in some instances, to have been mistaken for the small-pox. Now, if the disease which you have so accurately described, and which has *occasionally* occurred here, and I believe every where after

vaccination, *as well as formerly* after small-pox, be not the *horn-pock*, that disease (the horn-pock) must have entirely disappeared ; for no other disease answering the description of horn-pock is now to be met with. This I assert, not only on my own authority, after having in vain anxiously examined every case of eruption for many years past, in order to discover something to which the name was applicable,—but also on that of my colleagues at the Dispensary, and of many other medical men with whom I have conversed on the subject, all of whom admit a perfect knowledge of the name, but cannot say that they have ever seen the disease (the horn-pock) in subjects who have been vaccinated, unless it be the one now in question.

“ From what I have observed of the eruptive disease which you describe, I have no doubt that it proceeds from the contagion of small-pox, and that it now appears in some instances after the cow-pox, (more or less frequently, according to circumstances of season, of epidemic constitution, or of peculiar state of body,) as it did formerly after the small-pox, and thus places the cow-pox and the small-pox exactly on the same footing with regard to a future or second attack of small-pox. I think all the facts observed with regard to cow-pox and small-pox justify this explanation rather than that by *imperfect vaccination*. Thus it is well known that a great many persons have had a disease similar to the one you describe, either by exposure to the concentrated action of small-pox contagion, or by inoculation with the matter of small-pox, although they formerly had the small-pox in the most satisfactory manner. In one family, where I saw this horny eruption after vaccination, the history was most instructive. The family consisted of five children : the oldest, a girl of 16 years of age, had the small-pox in a very satisfactory manner when 9 months old ; the second was a boy of 9 years

of age, who was vaccinated at the Dispensary here. The other three were younger, and neither had been vaccinated, nor had they had small-pox. The third child was seized with the natural small-pox, of which she had a full load; she slept with her oldest sister, who had the small-pox in her youth. About the 12th day of the eruption on the third child, the oldest sister became sick and uncomfortable, with fever, which continued for three days, and was followed by an eruption of many pimples on her face, head, neck, shoulders, arms, and thighs. The second child, who had been vaccinated, also sickened about the same time with the oldest girl; and, after a slight fit, there also appeared upon him an eruption of pimples on his face and body, rather more numerous than upon his older sister, but certainly not of larger size. On both, the eruption blackened, or rather dried into hard and horny pimples about the 4th day, and both were presently well again. The fourth child had an abundant crop of natural small-pox. The fifth child, an infant, was vaccinated, and did well. I think there cannot be a doubt that this disease in the oldest girl would have been called the horn-pock, before the days of vaccination; and as she had never undergone that process, having had the small-pox by inoculation in a most satisfactory manner in her youth, there can be no reason why it should not obtain the same name now. But the disease of the boy who had been vaccinated, was most assuredly the same with that of his oldest sister; it arose apparently from the same source. The mode of attack, the appearance and duration of the eruption, were the same. This also, then, must be named the horn-pock, a disease known long before the discovery of vaccination; and I think there can be no doubt that it arose from the action of the contagion of small-pox, to which both these children were exposed, while their sister, who had not

been inoculated with the small-pox, laboured under that malady.

"I am glad to find that you also have observed this disease in a few cases after the inoculated *small-pox*, as it adds to the confirmation of the explanation I have given, and to place the inoculated small-pox and the cow-pox exactly on the same footing; for one readily sees why, in the present day, this eruption should be more frequently seen after cow-pox than after the inoculated small-pox, as few in proportion now undergo this latter process.

"I agree with you, that those severe and fatal cases which occurred, were, from some cause, improperly vaccinated, or rather not vaccinated at all.

"In estimating the merits of the cow-pox, it must always, in my opinion, be compared with the inoculated small-pox; and, considering the many advantages which it assuredly possesses, if it can be placed on the same footing with its opponent, in regard to preventing a future attack of small pox, this is all which, in my mind, the warmest friends of vaccination can desire, or have even aimed at establishing."

3. *Reply of Dr. Adams to Mr. Bryce.*

"SIR,

Forfar, 3d May, 1814.

"Since I was favoured with your very obliging reply to my communication of 24th February, I have been endeavouring to collect all the additional facts on the subject of the epidemical eruptive fever, which my means of information afforded me, and have instituted several more trials with matter from its pustules in infants not inocu-

lated; the results of which are in some respects satisfactory.

“ It appears extremely difficult to determine precisely the nature of this affection, from all circumstances, as they at present stand, though I think there can be now no doubt of its having a close connexion with *variola*, if they are not one and the same disease. We were rather inclined to adopt the explanation proposed by Mr. Moore, Director of the N. V. I. that the failure of vaccination, viz. *in all or most of the instances, had proceeded from one vesicle only having been excited, and that one opened for the purpose of inoculating others*, because the circumstance of producing two or more vesicles had not been attended to by vaccinators here, nor ever acted on as a principle in their practice. In order to ascertain, however, the effect of abstraction of lymph from the vesicle, it was necessary that we should be acquainted with the circumstances of inoculation in each, that the process of those who have been affected with the recent disease, might be compared with the others that have escaped; and thus, if possible, the cause of difference arrived at. The result of my inquiries, with this view, I shall briefly state. Of 80 cases, or upwards, contrary to what I mentioned in my last, *more* than a half have been vaccinated by surgeons, and of these there are 12 from whose pustules no lymph was abstracted, nor did the parts receive any injury from the friction of the cloths, but healed up kindly. 5 of the 12 had two vesicles on the inoculated arm, and of the whole number, many have had more than one vesicle, but it is not remembered whether one or all may have been opened. In one case only is a cicatrix entirely wanting, and six or seven have presented a very superficial scar.

“ As the phenomena that have taken place, of the recent eruption, in those who had been inoculated by midwives,

or others, are the same as in the patients of the surgeons, it is reasonable to presume, that the circumstances of the inoculation had also not been different; and if this is admitted, other 10 will be added to the 12, whose vesicles had not been disturbed. There occur, therefore, 22 cases, where the explanation proposed, from the circumstance of the process of vaccination having been interrupted by the opening of the vesicle, is not applicable. Are we then to conclude, that in these the fluid used for inoculating had not been the genuine vaccine virus, but in some way defective, probably from having been taken away at too late a period. Such indeed might have happened in the practice of the midwives, but could not be supposed to occur under the care of those who had paid any attention to the subject, or been acquainted with the discriminating marks of the true and spurious pustule. But, upon the ground that in all of the cases of this eruptive affection, where it is asserted no injury was received by the cow-pox vesicles, the fluid used had been defective, it will appear singular, that the very same effect should have been produced as in the others, where *abstraction of lymph* from *genuine* vesicles is assumed as the cause. If we could be assured, that in the twelve cases vaccinated by surgeons, no disturbance had been given to the process, facts would oblige us to reject this mode of explaining the late occurrences; but when it is considered, that our only authority are the accounts of the parents, whose recollection of the events may not now be very perfect, it is obvious that we cannot, upon the faith of these, altogether throw aside a supposition which certainly *may* apply to the greater part, if not to the whole. That the disease is no form or modification of *varicella*, the detail of a single case would, I think, completely satisfy any one. and experiment has put the matter beyond controversy. Of four children inoculated with the

matter of this *doubtful* affection, one has afforded all the characters of *small-pox*. Eight or ten days after inoculation, this infant sickened, puked, and for two or three days refused his accustomed nourishment—a scarlet efflorescence then came out all over the surface, which was quickly succeeded by an eruption of papulæ, that became pustular, and remained out, during nine or ten days—their size in general equalling that of a small garden pea, in number about 100. In two others the symptoms were the same, with the exception of the size and duration of the pustules—these did not exceed six or eight, and remained no longer than four or five days. One, an infant of five months, (as mentioned in my former communication,) showed no deviation from her usual state, but on the inoculated arm there arose perfect vesicles, as was the case in them all. These three have since been inoculated with *variolous matter*, and no local effect even has followed.

“Your opinion as to the nature of the eruption appears to be confirmed by some facts noticed during its prevalence and especially by that of the disease having occurred in subjects who had previously had *small-pox* by inoculation; and even in one or two who had undergone the disease in the casual way. Three distinct cases have been observed, where the subjects had before been inoculated for small-pox, and exhibited all the symptoms of the disease, (no pits being, however, left;) and as many where it is stated that the individuals had had *natural small-pox*. One of the former I paid particular attention to, and noted down every circumstance; and, on comparison, there can be perceived no difference from the disease as occurring in the vaccinated. But to establish this point more fully, I inoculated an infant of three months with matter taken from the pustules of this patient, and the same phenomena were presented as by those who had been inoculated with the mat-

ter taken from the vaccinated. A second inoculation with *undoubted* variolous matter, produced no other result.

“ But surely if this affection proceeds from the contagion of *small-pox*, it must virtually be *small-pox*--at least, every analogy would lead us to believe so; and it appears difficult to reconcile the contrary with known facts, even upon the supposition of its occurring only under certain circumstances of the epidemic constitution, or peculiar habit of body. If the disease was altogether distinct from small-pox, it might be expected that some subjects would have been seized with it who neither had been vaccinated, nor previously had small-pox; yet, with one exception of 20 cases and upwards of variola lately met with here, I cannot say that any presented appearances *strictly* the same as in this disease in the vaccinated. The eruptive fever in all has been much alike, but the pustules in the latter have neither been so numerous, so large, nor have continued of undiminished size for so long a period as in the former. The term *horn-pock* is not unknown to the lower classes here; and what so far corresponds with your explanation, they understand by it a mild kind of the variolous disorder—not, however, as applied to an epidemic collectively taken, but merely to single cases, in the same way as they use those of *scarlet* and *midden-pock*, to denote a case in the first, where the surrounding redness is considerable, and in the last, where there is no redness, but a very large and turgid, fully matured pustule. *Stone*, or *stane-pock*, I have only heard once mentioned in the course of my inquiries; and the disease was said to have occurred in a boy of seven years, who had previously been vaccinated, and also affected with *chicken-pox*, and has more recently laboured under the prevailing malady, and in as severe a manner as any hitherto observed. The pustule of chicken-pox was described by the mother as resembling a small

vesicle produced by burning with hot fluids, the eruption being preceded by a considerable degree of fever; while that of *stony-pock*, again, contained no humour, and, from what I could learn, was more like the elevation seen in *urticaria*, than the papulæ of a vesicular disease.

“Being desirous to observe the effect of inoculation with variolous matter after vaccination, I inoculated several who had been vaccinated by surgeons, and a few have exhibited signs of general affection about the 9th or 10th day, with well-defined vesicles on the arm, and two or three even an appearance of papulæ dispersed over the surface—these, however, dying away without forming humour, or going into crusts.

“In one family I inoculated three, two of whom had been affected by the epidemic. The matter inserted in all was taken from the same subject. No local effect followed in these two, but the incisions of the other became inflamed, and perfect vesicles, with extended areola, formed, and smaller pustules in that areola, exactly similar to the appearances observed in those inoculated with matter from the epidemical affection. This patient, a girl of nine, was slightly feverish, and complained of headach; and one papula, of small size, came out on the neck, in every respect similar to those of her brother’s in the prevailing eruption. This would seem to indicate a want of efficiency in vaccination, as a complete preventive of small-pox; but the evidence is too slight to warrant any thing conclusive against the mass of facts in favour of its antivariolous powers, allowing even that the like has been observed by others, because circumstances may have influenced the process of vaccination in such instances as could not possibly at a late period be known or appreciated. The medical gentlemen here have always been perfectly satisfied of the superiority of the new mode of inoculation when compared with

the old, and they have now no hesitation in declaring their conviction of its advantages, even should it be found not to possess a greater degree of power in warding off small-pox, than in what may have been exerted in the cases lately under observation, *supposing these really to have been a mitigated form of that disease.* I remain, with esteem, your very obedient servant,

“JOHN ADAM, jun.”

No. V.

Histoire de la Maladie que M. le Président d'Héricourt a essuyée au mois de Novembre dernier, à sa terre de Boulay ; par M. d'Arcet, docteur-régent de la faculté de médecine de Paris, et Professeur Royal au College de France.

“LA maladie exanthématique que M. le président d'Héricourt a essuyée à la fin du mois de Novembre dernier, ainsi que les expériences contradictoires qui en ont été la suite, ont fait tant de bruit que ce seroit manquer au public que de lui en laisser ignorer le résultat. D'ailleurs cet événement peut de venir très-essentiel pour l'histoire de la petite-vérole, et le sera, dans tout état de cause, infiniment pour l'inoculation.

“M. d'Héricourt avoit eu, vers le milieu du mois de Novembre, une indigestion qui l'avoit fort affoibli par le nombre considérable d'évacuations qu'il eut en un jour. Cependant le repos et une diète très-exacte le rétablirent promptement, et peu de jours après ses forces étoient comme en parfaite santé.

“Le lundi, 24 du même mois, il fut à la chasse par un temps et un vent très-froids, et il en souffrit beaucoup.

Rentré chez lui le soir, le feu dissipa la fatigue, et il soupa de grand appétit. Cependant la nuit fut laborieuse ; il dormit avec chaleur et agitation, comme il arrive dans le travail d'une digestion pénible, au plutôt lorsqu'on se trouve à la veille d'une maladie prête à se déclarer.

“ Le lendemain 25, M. d'Héricourt se leva avec la tête lourde et embarrassée, beaucoup de mal-aise, de la courbature, de la douleur à l'estomac, et particulièrement dans les cuisses et au-dessus des genoux. Le monde, qu'il eut ce jour-là chez lui, fit d'abord distraction à ses souffrances ; mais le soir ses douleurs se réveillèrent, et le mal-aise, la pesanteur de tête, l'accablement, la courbature en un mot furent plus forts que le matin.

“ La journée du mercredi 26, se passa dans les mêmes souffrances. La nuit suivante fut plus mauvaise ; point de sommeil, une chaleur brûlante avec des frissons passagers ; la douleur de tête, des reins et des cuisses plus forte, et une grande agitation.

“ Le jeudi vingt-sept, son valet-de-chambre s'aperçut en le rasant, de quelques taches ou petits boutons que se montraient au visage et sous le col, et l'en avertit. Bientôt après se sentant plus souffrant, plus accablé, et ne pouvant plus tenir debout, M. d'Héricourt prit le parti de se coucher, et ordonna qu'on avertît son chirurgien pour le lendemain.

“ Dès le matin 28 M. Villain arriva, et trouva le malade tres-souffrant. Son mal de tête, la douleur d'estomac, des reins et des cuisses, &c. continuoient toujours ; l'éruption étoit plus marquée, il lui fit mettre les jambes dans l'eau. M. d'Héricourt y éprouva une faiblesse avec un mal au cœur et une envie de vomir passagers ; et M. Villain lui dit qu'il avoit, dans ce moment, de l'émotion dans le poulx.*

Le soir du même jour il lui trouva de la fièvre ; le ma-

* Le procès-verbal de M. Villain dit de la fièvre, et à la visite du soir il dit que la fièvre avoit fort augmenté.

l'ade se plaignit de mal de gorge, et lui ayant fait mettre encore les jambes dans l'eau, il y éprouva la même foiblesse, les mêmes nausées, et plus fortes encore que le matin. L'éruption, qui étoit accompagnée d'une très-grande moiteur, se faisoit bien; elle devint même si considérable au visage, qu'il en auroit été couvert, dit-on, si la plus grande partie n'eût avorté. Cependant la nuit ne fut guere meilleure.

“ Le samedi 29, le chirurgien trouva l'éruption faisant des progrès, et fort avancée. Il déclara le soir à M. d'Héricourt, qu'il avoit la petite-vérole, et lui avoua qu'il n'avoit pas osé le lui dire plutôt, dans la crainte de se tromper et de l'inquiéter sur une récurrence après l'inoculation.

Ce jour-là M. d'Héricourt fut plus calme, plus tranquille, et la nuit suivante bien meilleure que n'avoit été les cinq autres qui avoient précédé.

“ L'éruption paroissoit être faite entièrement le dimanche matin. Néanmoins la fièvre reprit avec force ce jour-là. Le malade fut assez mal pendant la journée; il sortit même quelques gouttes de sang par le nez; et le soir sur-tout, ainsi que la nuit, il fut plus agité et plus tourmenté que jamais de mal de tête, de fièvre, de chaleur, et sur-tout d'une moiteur excessive très-incommode. Cependant tout ce trouble cessa vers les deux heures après minuit, et le malade s'endormit un peu sur le matin.

“ Le lundi premier Décembre, j'arrivai au Boulay vers les trois heures après midi. Je trouvai alors M. d'Héricourt beau-coup mieux, à cela près d'un peu de fièvre, avec un reste d'étonnement à la tête. La suppuration s'établissoit au visage où il n'y avoit que douze ou quinze boutons tout au plus, et elle alloit progressivement au corps où l'éruption étoit plus considérable, sur-tout au dos; enfin sur les bras, aux cuisses, aux oreilles même, et sur la partie chevelue de la tête.

“Les boutons s'élevoient et s'arrondissoient bien ; la matiere dont ils étoient remplis, devenoit déjà opaque et blanche, et ils étoient ceints d'un cercle ou aréole rouge parfaitement caractérisé.

“La nuit du lundi au mardi fut assez bonne. Ce jour-là je jugeai la suppuration complete au visage, et assez avancée au corps. Quelques boutons commençoient déjà à se sécher à leur sommet, et c'étoient les plus petits. Je fis donner des alimens au malade qui se sentoit besoin, et qui avoit fait, jusqu'à ce moment, la diète la plus sévère.

“Le mercredi matin, 3 Décembre, je trouvai la dessiccation assez avancée, et le malade resta levé l'après-midi.

“Le jeudi 4, il n'y avoit plus que quatre boutons au visage qui ne fussent pas secs ; les forces revenoient avec l'appetit, et le malade, qui n'avoit pas été à la garderobe depuis trois jours, eut ce matin une selle naturelle et fort abondante.

“Cependant la dessiccation se faisoit d'autant plus facilement, qu'il y avoit peu de boutons, excepté, comme je l'ai déjà dit, aux épaules, aux bras, et au dos, où ils étoient et plus gros et plus nombreux. Il n'y en avoit presque point depuis les genoux jusqu'aux pieds.

“Le vendredi je réimbibai de nouveau mon fil de la matiere de ces boutons, ce que j'avois déjà fait la veille ; la dessiccation étoit entiere au visage : j'oublois de dire qu'il n'y a point eu de salivation.

“Enfin le samedi 6, la dessiccation me parut assez avancée sur le corps, pour faire passer un minoratif qui opéra doucement, et le soir le malade se trouva parfaitement bien. Je pris congé de lui, et je partis du Boulay le lendemain de grand matin.

“Le lundi 8, M. d'Héricourt, qui alloit de mieux en mieux, écrivit à Madame d'Héricourt sa mere, qu'il lui testoit encore quelques boutons sur le corps qui n'étoient

pas dans l'état de dessication complète. J'estime que le nombre qu'il en a eu, peut être de deux ou trois cents tout au plus.

“Enfin ces boutons ont laissé des marques qu'on reconnoît encore, meme sur le visage, où l'on en voit, entr'autres, une qui ne s'effacera jamais, et qu'on y distingue de celles qui lui sont restées de l'inoculation ; mais elles se sont conservées bien plus long-temps sur le corps, où les boutons étoient et plus nombreux et plus gros.

“Quelques jours après le retour de M. d'Héricourt à Paris, j'engageai M. Tronchin à le venir voir ; ce qu'il fit dans les premiers jours de janvier. Je m'y trouvai, et M. Tronchin a pu s'assurer de la chose par lui-meme.

“Nous ne devons pas laisser ignorer que M. d'Héricourt avoit été inoculé, en 1756, par M. Tronchin qui étoit à Paris ; et comme j'étois très-lié avec feu M. Roux, alors son gouverneur, qui ne le quitta pas, je ne laissai presque point passer de jour sans les aller voir. J'ai été témoin du succès de cette inoculation ; j'en ai la mémoire présente, et je me rappelle parfaitement bien que M. d'Héricourt eut alors tous les signes de l'infection varioleuse, d'une maniere très-marquée, et que la maladie eut tous les caracteres qui lui sont propres, et meme les accidens qui étoient alors plus fréquens et plus graves, qu'ils ne le sont communément aujourd'hui.

(Signé) “D'ARÇET.”

“Je soussigné certifie que tous les faits qui me concernent dans le procès verbal ci-dessus, sont dans la plus exacte vérité, et que l'ayant envoyé à M. Villain, mon chirurgien, pour examiner s'il étoit conforme à ses observations, il m'a répondu qu'à quelques légères circonstances près, il étoit de la plus grande exactitude, et que, pour le confirmer et l'éclaircir sur ces petites différences, il m'a envoyé le procès-verbal qu'il en avoit rédigé au moment de la maladie ;

en foi de quoi j'ai signé le présent certificat. A Paris, ce 12 Mars, 1778.

(Signé,)

DUTROUSSET D'HERICOURT.

“D'après le caractere de la maladie que je viens de décrire, d'après son invasion, ses progrès, les périodes qu'elle a suivies, sa terminaison enfin ; et, ce qui est peut-être plus fort que tout cela, d'après la force impérieuse du coup-d'œil, je revins du jugement que j'avois porté avant de partir de Paris, et je déclarerai au contraire, *que j'étois persuadé que cette maladie étoit une vraie petite-verole, mais tres-discrete, mais tres-benigne.*

“Cependant comme la possibilité des récidives de cette maladie n'est pas avouée de tout le monde, et que la plupart des partisans même modérés de l'inoculation, disent qu'ils n'en ont jamais vu d'exemple constaté, je crus que je devois profiter de cette occasion pour m'en assurer autant qu'il seroit possible ; ainsi tout préjugé, toute opinion à part, je ne songeai qu'aux moyens de tenter des expériences qui pussent nous rapprocher de la vérité.

“Je suis partisan de l'inoculation. J'ai inoculé lorsque l'occasion s'en est présentée. J'ai inoculé ma fille au mois de mai dernier, j'inoculerai mon fils lorsqu'il sera en âge de l'être ; et cependant je crois à la possibilité de ces récidives, ou du moins je ne vois pas de raison d'en admettre l'impossibilité : mais comme il est certain que les exemples en sont fort rares, cela m'a suffi pour rester persuadé de la bonté, de l'utilité de cette méthode. Je suis donc là-dessus sans préjugé, autant qu'il est possible de l'être.

“A mon retour du Boulay à Paris, je vis M. Tronchin. Je lui fis part de ce que j'avois fait, et de la résolution où j'étois d'inoculer avec le fil que j'avois imbibé de la matière des boutons de M. d'Héricourt ; M. Tronchin le desiroit comme moi. Il me procura un enfant de trois ans et demi ;

j'en trouvai un autre de mon côté, âgé de quatre ans, et, m'étant assuré du mieux qu'il me fut possible, qu'il n'avoient jamais eu la petite-vérole, nous prîmes jour au 28 Décembre pour les inoculer.

“ L'insertion fut faite par M. Brasdor aux deux bras de chaque enfant par la méthode de l'incision, en présence de MM. Lorry, Tronchin, Caille, Le Roi, Galatin, et Bertholet, qui s'étoient tous rendus à l'heure indiquée chez moi. Je plaçai moi-même les fils dans les plaies, j'y ajoutai par-dessus un peu de poudre de deux croûtes sèches que j'avois ramassées dans le lit de M. d'Héricourt; on assujettit le tout avec le sparadrap, et un bandage contentif à l'ordinaire. On arrêta qu'on laisseroit l'appareil deux fois 24 heures sans le lever; les enfans furent conduits chez leurs parens, et nous veillâmes sur eux MM. Tronchin et Brasdor d'un côté, et moi du mien.

“ Le Mardi 30 Décembre, nous étant tous réunis, nous levâmes l'appareil en portant la plus grande attention à constater si les fils étoient restés dans les incisions. Tous en effet furent trouvés très-exactement en place, excepté au bras droit de l'enfant plus âgé, sur lequel le fil s'étoit déplacé d'en viron un tiers de ligne dans toute la longueur de l'incision.

“ Le 2 Janvier nous visitâmes ensemble l'état des plaies; on les trouva presque entièrement effacées, et sans signe d'infection ni d'inflammation, meme sur le bras gauche de l'enfant de quatre ans, où l'incision avoit été plus profonde qu'au bras droit, et sur lequel j'avois trouvé, la veille, une inflammation marquée.

“ Enfin le 5 Janvier nous avons encore revu les deux enfans, et nous avons constaté qu'il ne paroissoit plus rien, excepté sur le bras gauche de plus âgé, où il s'étoit formé une légère croûte qui ne dépendoit que de la profondeur de l'incision dont on a déjà parlé.

“Alors nous nous sommes séparés après être convenus mutuellement de nous réunir dans le cas où il paraitroit quelque signe d'infection ; et, dans le cas contraire de réinoculer ces memes enfans avec de la matiere d'une petite-vérole naturelle, et cependant de laisser écouler un mois entier entre les deux inoculations. Notre objet étoit de nous assurer si ces deux sujets étoient susceptibles de l'infection varioleuse ; et il étoit en effet très-important de le constater. Ces enfans ont été suivis avec soin, et il est certain qu'ils n'ont eu rien ni l'un, ni l'autre.

“Le 8 Février dernier, nous nous sommes rassemblés, et nous avons inoculé de nouveau ces deux sujets avec un fil plus gros du double, et plus imbibé que le premier. L'incision a été faite avec les memes précautions que la premiere fois. La matiere dont on s'est servi, (c'est M. Brasdor lui-même qui l'avoit prise le 22 Janvier précédent,) avoit 17 jours, tandis que celle que j'avois apporté du Bou-lay, en avoit 23. Nous ne faisons ces remarques qu'afin qu'on ne puisse pas nous reprocher d'avoir négligé ou laissé ignorer quelque circonstance.

“Nous n'avons pas été les maîtres de choisir la température, et quoique la différence n'ait pas été considérable, il est pourtant bon de savoir que, pendant les dix premiers jours de la premiere inoculation, le thermometre a constamment été à zéro, ou d'un, deux ou trois degrés au-dessous ; excepté trois ou quatre fois qu'il est monté, à midi, à deux degrés audessus.

“Dans la seconde inoculation au contraire, il a été les quatre premiers jours, matin et soir, toujours plus haut, et quelquefois de 4 et meme de 6 degrés audessus. Quant aux autres circonstances qui pouvoient dépendre de nous, elles ont constamment et rigoureusement été les memes.

“Nous nous sommes réunis le 10 pour lever les appareils ; les fils se sont trouvés très-exactement insérés dans

les plaies. Leur grosseur, jointe à la compression du bandage, les avoit enflammées, ainsi que la peau tout autour.

“ Le 11, Cette inflammation de la veille étoit tombée ; il n'en restoit plus qu'une trace bien marquée sur les incisions.

“ Le 12, M. Brasdor et moi avons cru reconnoître un commencement d'infection.

“ Le 14, Nous avons vu des marques d'infection non équivoques, et nous avons réunis les deux enfans dans la maison que M. Brasdor a hors de la barriere Cadet, et qu'il a consacrée à cet usage. Il a voulu concourir aussi au bien de la chose ; il a eu la bonté de nous la prêter, et d'y faire fournir généreusement tout ce qui a été nécessaire aux petits malades et aux femmes qui les gardoient.

“ Le 15, Les plaies étoient gonflées, enflammées, et l'on y voyoit déjà de la suppuration. Louis, le plus jeune des deux enfans, n'avoit rien au bras gauche où la trace de l'incision étoit effacée, comme si l'infection n'eût pas pris.

“ Le 16, Les plaies étoient encore plus avancées ; mais le plus jeune n'avoit rien au bras gauche. L'après-midi les enfans commencerent à moins jouer, à être tristes, à se fuir l'un l'autre, et à n'avoir plus d'appétit.

“ Le mardi 17, Ils se sont trouvés pris tous les deux, le matin, de mal de tête, de fièvre, et d'un grand accablement. Le plus petit avoit vomi, dans la nuit, la pomme qu'il avoit mangée la veille. Tous les deux ont eu du délire pendant la nuit, et cet état a été à-peu-près le meme pendant toute la journée : il a paru le matin un bouton au bras gauche du petit Louis, au lieu meme de l'insertion qui étoit effacée.

“ Le 18, L'éruption a commencé à paroître, dans la nuit meme, au plus jeune, et dans la matinée à l'autre. Ces enfans se suivoient ainsi très-exactement dans leurs périodes, à quelques heures près, dont le petit Louis devançoit François son camarade plus âgé. Dès ce jour là, ils ont

été beaucoup mieux, c'est-à-dire, moins souffrans que la veille. Le petit Louis a cependant été toujours plus malade que l'autre.

" Le 19, Nous nous sommes rendus à l'heure marquée. L'éruption continuoit de se faire ; les plaies étoient enflammées, et en pleine suppuration. En un mot, nous avons reconnu la petite-vérole aussi bien caractérisée et aussi régulière qu'elle l'est ordinairement par l'inoculation.

" Le 21, Les enfans étoient parfaitement bien ; les plaies en bon état, une partie des boutons en suppuration, et les autres avortés. On en a compté environ 50 à 60 sur chacun de ces deux enfans, sans compter ceux qui ont avortés.

" Le 24, Tous les boutons étoient secs à François le plus âgé ; mais Louis en avoit encore trois ou quatre qui ne l'étoient pas tout-à-fait. Les plaies étoient à tous deux en croûte sèche.

" Le 25, Tout étoit sec ; mais il étoit survenu quelques nouveaux boutons au petit Louis, et quelques-uns aussi à François.

" Enfin le 28, Les croûtes des plaies étoient entièrement sèches, ainsi que les bords qui se détachioient déjà, comme si elles étoient près de tomber.

" En un mot, il est constant que l'infection varioleuse s'est communiquée aux deux enfans par cette seconde opération, comme il l'est qu'il n'y a rien eu par la première. Ils ont passé par toutes les époques, toutes les périodes, et ont essuyé les accidens essentiels qui caractérisent cette maladie, lorsqu'elle est ainsi artificiellement communiquée.

" J'ai rempli fidèlement la loi que je me suis imposée, de présenter les faits avec la rigueur la plus scrupuleuse, et de les abandonner, dans toute leur pureté, au jugement du public ; mais on sentira facilement combien il faut être sobre sur les inductions absolues qu'on en pourroit tirer.

La voie de l'expérience et de l'observation, qui est la route qu'on doit toujours adopter dans les matières problématiques de physique et de médecine, est la seule qui puisse un jour couler à fond les opinions, et faire surnager la vérité. Je ne vois pas que nous ayons jusqu'ici assez de faits constatés pour nous fixer décidément sur la possibilité ou sur l'impossibilité des récidives. J'aurois bien de la peine d'admettre tous les exemples qu'on en rapporte dans le monde; mais n'y en eût-il qu'un de vrai, il peut, avec le temps, y en avoir cent: et le moyen en effet de poser des bornes à la nature? Il me semble qu'il se présente naturellement quelques questions importantes à résoudre, avant de pouvoir prononcer là dessus.

"1°, La maladie de M. d'Héricourt est-elle une petite vérole? Si c'en est une, d'où vient qu'elle ne s'est pas communiquée à l'un ou à l'autre de ces deux enfans qui en étoient susceptibles? Si au contraire ce ne l'est pas, quelle est donc cette maladie qui revêt ainsi toutes les formes, tous les caractères essentiels de la petite-vérole, et à quel genre convient-il de la rapporter? Quelle que soit la réponse, on sent d'avance que tout est ici à l'avantage de l'inoculation.

"2°, Le virus de la petite-vérole, comme celui de la peste et des maladies contagieuses, est-il toujours le même, considéré dans son intensité, et le sujet qui le reçoit ainsi que beau coup d'autres circonstances, ne peuvent-ils pas en exalter ou en exténuer l'énergie, comme cela arrive aux plantes à raison de la différence de la culture, des terrains et des climats?

"3°, A supposer une récidive, la maladie ne peut-elle pas souffrir une telle altération en passant dans un sujet qui en auroit précédemment été attaqué, que son germe deviendrait, s'il m'est permis de le dire, *mulet* et incapable de se reproduire.

“ 4°, Pourquoi une petite-vérole naturelle, même bénigne et non épidémique, se montre-t-elle toujours avec un caractère plus imposant et plus grave, pourquoi est-elle toujours plus vigoureuse, plus nourrie que la même maladie communiquée par l'insertion ; et pourquoi parcourt-elle toutes ses périodes d'une marche moins rapide que cette dernière ? Pour peu qu'on y réfléchisse, on verra qu'on n'a pas répondu d'une manière satisfaisante à cette question.

“ 5°, Enfin est-il toujours égal d'inoculer avec la matière varioleuse, prise sur un sujet inoculé, ou sur un sujet atteint d'une petite-vérole naturelle bien caractérisée ? Et à supposer qu'elle ne prenne point dans le premier cas, n'est-il pas sage de changer la matière, et de la prendre de celle du second ?

“ Je ne cherche point, à Dieu ne plaise, à mouvoir des difficultés. Je tâche de suggérer, autant qu'il est en moi, les moyens de les résoudre ; et, si je ne me trompe, j'y vois, avec le tems, une grande possibilité.

“ Je crois donc qu'il est important de saisir toutes les occasions qui pourront se présenter de récidives semblables à celle de M. le Président d'Héricourt, soit qu'elles tombent après la petite-vérole artificielle, soit après la naturelle pour inoculer de l'une et de l'autre, des sujets qui n'aient jamais été atteints de cette maladie ; et, dans le cas qu'elle ne prendroit point, on sent alors combien il est important de constater, ainsi que nous l'avons fait, que les sujets étoient pourtant susceptibles de cette contagion.

“ C'est dans ces circonstances sur-tout, qu'il peut être essentiel de pratiquer l'inoculation avec une matière fraîche et prise immédiatement du sujet actuellement infecté.

“ On a vu des gens, qui ayant eu déjà la petite-vérole, se sont encore fait inoculer. Il est arrivé quelquefois qu'il s'en est suivi une infection purement locale ; on a vu qu'il

survenoit un gros bouton variolique dans le lieu même de l'insertion.* C'est encore avec cette matière fraîche qu'il seroit bon de la tenter sur un sujet susceptible de l'infection.

“ Il seroit bon de la tenter encore avec une petite-vérole toujours la même, et à mesure qu'elle passeroit successivement sur différens sujets, afin de déterminer ainsi, jusqu'où elle peut aller sans s'abâtardir, ou à quel point enfin elle s'arrête, et ne se reproduit plus.†

“ Un petit nombre d'expériences faites d'après ces nouveaux points ne vue avec suite, et sur-tout avec cette impartialité si juste, si convenable, si nécessaire dans un sujet qui intéresse le genre humain de si près, seront plus utiles, sans doute, elles éclairciront plus la matière, que tous ces calculs qui sont sortis de la chaleur des disputes,

* “ Le jour que j'imbibai mon fil pour la seconde fois, ce que je fis en le pressant sur les boutons, à mesure qu'on les ouvroit avec le ciseau, mes doigts en furent mouillés, et, par distraction, j'oubliai de les laver ; cependant je les portois sans cesse involontairement sur le bord interne de la paupière supérieure gauche, sur laquelle j'avois eu un emphysème ou bouffissure quelques jours auparavant. Cela s'étoit passé, et il ne m'étoit resté qu'une démangeaison assez incommode. Ce soir-là même mon œil devint plus malade, la paupière se gonfla prodigieusement la nuit et le lendemain ; il y survint un gros bouton qui est venu à suppuration, et quia fait croûte. Je le fis voir à M. Caille, le lendemain de mon retour à Paris, et je lui racontai ce qui m'étoit arrivé. Pareille chose est arrivée trois ou quatre fois à M. Lorry.”

† “ M. Tronchin a déjà fait cette observation. Il a inoculé neuf personnes successivement de la même petite-vérole, en la portant ainsi de l'un à l'autre ; des circonstances particulières l'empêchèrent de la suivre plus loin : mais il nous a ajouté que la septième personne eut une petite-vérole confluante ; les autres l'eurent à l'ordinaire.”

et que les deux partis se sont également et contradictoirement opposés.

(Signé,) “ LORRY, TRONCHIN,
 D'ARCET, CAILLE;
 LE ROY, BERTHOLET,
 GALATIN, BRASDOR.”

No. VI.

Réflexions sur une Petite-Vérole volante qui a présenté quelques phénomènes extraordinaires ; par le Cit. Fréteau, Chirurgien à Nantes, Membre de l'Institut départemental du Département de la Loire-Inferieure.

“ Deux maladies essentiellement différentes, quant à la contagion qui les produit, ont néanmoins, dans quelques circonstances, une telle analogie, qu'il n'est pas infiniment rare de les confondre ; je veux parler de la vraie petite-vérole et de la petite-vérole volante ou variolette. Cette identité apparente est probablement la source de l'erreur, malheureusement trop accréditée, que la petite-vérole peut survenir deux fois à la même personne dans le cours de sa vie.

“ Je fus appelé le 25 brumaire pour donner des soins à un enfant de six ans, atteint de fièvre dont l'invasion eut lieu vers les cinq heures du soir, par de légers frissons, de la pesanteur à la tête, et des lassitudes dans les membres. Au bout de 24 heures, il se fit une éruption boutonneuse, qui parut d'abord sur la poitrine, puis sur le visage. Les boutons y étaient assez nombreux le deuxième jour. Du

2 au 3, tout le reste du corps fut plus abondamment couvert ; mais cette éruption s'offrit plutôt sous l'apparence de vésicules, que sous la forme de petits points rouges ; ce qui me parut, dès le premier instant, indiquer une petite-vérole volante. Cette indication était d'ailleurs appuyée sur ce que l'enfant avait été, le mois de prairial précédent, inoculé à Angers, ainsi que son jeune frère, par un habile médecin, le cit. *Chevreuil*, et que l'inoculation avait produit sur notre petit malade, une éruption de plus de 80 pustules : sur le jeune frère, il en était résulté une petite-vérole confluyente.

“Cependant, en assignant à cette maladie le nom de petite-vérole volante, les considérations que j'offris sur le caractère qu'elle allait montrer, ne se réalisèrent point. J'annonçai une éruption médiocre, elle fut très-abondante ; une fièvre légère, elle continua avec assez d'intensité jusqu'au douzième jour ; un dessèchement de pustules vers le quatrième ou cinquième, et la plus grande partie était encore tellement remplie de pus sur les mains et sur les pieds le onzième jour, qu'il me fut possible d'en charger plusieurs lancettes.

“ Mon pronostic ne s'étant trouvé que très imparfaitement réalisé, et cette maladie paraissant, sous certains aspects, avoir autant et plus de rapport avec la vraie petite-vérole, qu'avec la variolette ; les parens de l'enfant, qui avaient été jusqu'alors les partisans et les défenseurs de l'inoculation, ne me dissimulèrent point qu'ils n'y avaient plus de confiance ; qu'il leur paraissait hors de doute, que leur enfant était atteint d'une seconde petite-vérole : ils en concluaient l'inutilité de l'inoculation ; et déjà cette opinion avait acquis faveur dans tout le voisinage. La bonne foi et l'esprit juste, l'intelligence des parens me firent espérer que je parviendrais à les dissuader, en leur mettant sous les yeux les caractères et les nuances qui

s'opposaient à ce qu'on donnât à cette éruption le nom de vraie petite-vérole. Il me parut également intéressant de faire prononcer d'une manière authentique sur la nature véritable de cette maladie. En conséquence je fis rappeler plusieurs médecins, parmi lesquels se sont trouvés Messieurs *Desplantes, Blin, Foure, Fabre*, etc. tous ont vu séparément le malade, et tous ont été d'avis que cette éruption appartenait exclusivement à la petite-verole volante.

“ En effet, en faisant un rapprochement exact de la vraie petite-vérole, avec l'éruption dont il est ici question, on voit d'abord que si elle appartenait à la petite-vérole, elle ne pourrait se rapporter qu'à la discrète. Mais dans cette dernière, l'invasion de la fièvre a lieu le plus ordinairement le matin vers midi; elle est fréquemment accompagnée de vomissemens et de quelques mouvemens convulsifs. L'éruption ne se fait en général que le troisième jour, sous forme de petits points rouges, à peine éminens, et qui s'élèvent par degrés pour former des boutons; dès le troisième jour, la fièvre s'abat, et cesse entièrement au cinquième.

“ Ici, au contraire, l'éruption a commencé à se manifester au bout de 24 heures de fièvre. Celle-ci a paru à cinq heures du soir, et n'a été accompagnée ni de vomissemens, ni de mouvemens convulsifs. L'éruption a d'abord eu lieu sur la poitrine, et s'est, dès le premier instant, offerte plutôt sous forme de vésicules d'une certaine étendue, que sous l'apparence de boutons rouges. La fièvre, quoique moins violente après l'éruption, s'est néanmoins soutenue jusqu'au douzième jour.

“ Dans la vraie petite-vérole, ce n'est que vers le sixième qu'il paraît au centre de chaque bouton une petite vésicule de couleur de miel, qui s'étend et s'élève en pustule sphérique vers le huitième jour.

“ Mais ici, dès le troisième jour révolu, les pustules de

la poitrine et du visage ont offert des vésicules remplies d'une matière jaunâtre. A cette époque, celles du reste du corps contenaient une matière lymphatique transparente.

“ La base de la plupart de ces pustules s'est, à la vérité, étendue et a présenté ce bord circulaire enflammé qui accompagne constamment le vrai bouton variolique, et presque jamais celui de la petite-vérole volante.

“ Il faut également convenir que si la fièvre d'éruption n'a point cessé le cinquième jour, et si la fièvre de suppuration n'a été ni marquée, ni distincte, comme cela a lieu le plus ordinairement dans la vraie petite-vérole ; il n'en est pas moins certain que la matière contenue dans la majorité des pustules a acquis de la maturité ; qu'elle y est devenue plus opaque, d'abord blanche, ensuite de couleur jaunâtre.

“ Enfin, si le onzième jour il a été possible de recueillir de la matière purulente sur les mains et sur les pieds, il est constant qu'à la poitrine et au visage les pustules étaient en pleine dessication dès le septième jour ; que toutes y sont parvenues sans laisser appercevoir à leur centre ce point noir par lequel on les voit communément s'ouvrir pour laisser échapper une portion de la matière qui y est contenue ; que le pus s'est formé dans les boutons du visage, sans déterminer un gonflement sensible de cette partie, et qu'il en a été de même des bras et des jambes, quoique complètement couverts. Je dois ajouter que chaque pustule, en se desséchant, s'est étendue de manière à présenter ensuite une croûte beaucoup plus large et très-applatie, au lieu de diminuer de diamètre, de se resserrer en quelque sorte, et de former une croûte légèrement arrondie, comme cela me paraît avoir lieu dans la vraie petite-vérole discrète.

“ L'exposé fidèle des circonstances qui ont accompagné l'éruption que je viens de décrire, démontre qu'elle ne peut

être considérée comme une vraie petite-vérole, puisqu'elle en diffère, 1.^o Par le caractère de la fièvre éruptive ; 2.^o Par l'époque de l'éruption ; 3.^o Par l'absence d'une fièvre de suppuration distincte et manifeste ; 4.^o Par l'appareil de dessiccation des pustules. De plus, je rappelle que l'enfant avait eu la petite-vérole par voie d'inoculation, et qu'il ne paraît pas prouvé que la même personne puisse, dans le cours de sa vie, être atteinte une seconde fois de cette maladie, qu'elle ait été reçue naturellement, ou communiquée.

“Quoi qu'il en soit, si une éruption a jamais eu des rapports frappans avec la vraie petite-vérole, c'est, à coup sûr, celle que je viens de décrire. Il a fallu la suivre de près et en observer scrupuleusement toutes les nuances, pour ne pas s'y méprendre ; car si, d'un côté, on est en droit de lui refuser le nom de petite-vérole, d'un autre, on ne peut se dissimuler qu'elle a offert des phénomènes étrangers* à la variolette, tels que la multiplicité des pustules, le cercle rouge et enflammé de leur base, la formation lente et graduée du pus qu'on pouvait encore recueillir le onzième jour de la maladie.

* “Cullen, persuadé que l'existence de la petite-vérole volante avait souvent donné lieu de croire que la même personne avait eu deux fois la petite-vérole, conseille, pour parvenir à les bien distinguer, de faire attention aux circonstances suivantes :

“1.^o L'éruption de la petite-vérole volante est précédée de très-peu de fièvre, ou d'une fièvre dont la durée n'est pas déterminée.

“2.^o Les boutons de la petite-vérole volante se changent plus promptement en petites-vésicules, que ceux de la vraie petite-vérole.

“3.^o La matière de ces vésicules est fluide et n'acquiert jamais la couleur et la consistance du pus, qui paraît dans les pustules de petite-vérole.

“4.^o Les pustules de petite-vérole volante forment toujours des croûtes trois ou quatre jours après s'être manifestées.”

“ Pour confirmer le défaut d'identité de cette éruption avec la vraie petite-vérole, il restait à en inoculer la matière. J'ai, en conséquence, le 1^{er}. nivôse, en présence du Cit. Valteau, chirurgien, piqué deux enfans d'environ six ans, et le lieu de l'insertion n'a présenté ni bouton, ni inflammation, ni trace de rougeur. Cette expérience paraîtra décisive, et devra lever toutes les difficultés, et tous les scrupules qui pourraient rester. Ce qui sur-tout est bien propre à donner de la force à mon opinion, c'est l'apparition d'une petite-vérole volante sur le jeune frère. Ici point de doute ; la maladie a présenté un caractère de simplicité, tel que les pustules étaient croûteuses dès le quatrième jour de leur sortie. L'invasion de cette variolette a eu lieu le 24 frimaire, c'est-à-dire, un mois après la précédente.

“ Si la maladie dont je viens de tracer le tableau ne peut-être considérée comme une vraie petite-vérole, on peut en conclure que toutes les fois qu'on a supposé que celle-ci avait pu survenir deux fois à la même personne, on a pris une petite-vérole volante pour une vraie petite-vérole ; que rien ne prouve la possibilité d'une seconde infection variolique, et qu'il faut s'efforcer de détruire une prévention qui jusqu'ici a évidemment nui aux progrès de l'inoculation, sur-tout en France, où, moins que par-tout ailleurs, on en a su apprécier les avantages.

“ Si l'inoculation de la vaccine obtient en France plus de succès que l'inoculation de la petite-vérole, n'est-on pas en droit d'espérer enfin l'anéantissement d'un des plus redoutables fléaux qui ait affligé l'humanité ?”

No. VII.

“Three of the children of John Holland, residing in Castle Bank, were successively affected with an eruptive disease, the character of which, while it differed in many of its features in each individual, embraced in all, many of the symptoms which are generally regarded as distinctive of variola and varicella. Two of the children, (Maria and Catharine,) had been vaccinated when six weeks old by a midwife, but it is worthy of remark, that in Maria, one vesicle only was produced, and in both cases the vesicles were punctured on the ninth day, and afterwards ulcerated; notwithstanding, the cicatrices on the arms would have been considered good, and indicating the uninterrupted progress of the vaccine antidote. John had not been successfully vaccinated. These children had all, some years previous to the occurrence of the present disease, suffered an attack of an eruptive complaint, which was pronounced by four medical practitioners in Paisley, (where Holland, and his family were then living,) to be the chicken-pox. The neighbourhood of Holland’s residence has lately afforded several instances of unequivocal natural, as well as modified small-pox, and in particular, the subjects of these cases had been in the habit of repeated intercourse with a family, one of whom had, ten days previous to Maria’s attack, died from confluent *variola*. With a view to secure greater precision and distinctness in the description of the following cases, and likewise, that the points of resemblance and disagreement may be more obvious and apparent, I shall relate them separately, as they individually occurred. As I was not called, however, at the outset of the disease, the symptoms

which occurred during the incipient period, have been collected from the testimony of the parents."

"**MARIA H.** æt. 8. Was seized on the 10th of July with headach, flushing, restlessness, heat of skin, thirst, and vomiting; delirium supervened, and she was observed to be repeatedly convulsed. These febrile symptoms were of four days duration, and were for a time relieved by a copious epistaxis. An erythematous rash preceded the eruption, which on the 5th day made its appearance on the face and arms, it shortly afterwards occupied the inferior extremities; the breast, back, and belly, were the last in the order of parts affected. On the first day of eruption, the skin was studded with papulæ, communicating to the finger a sensation of roughness; as of grains of seed. The eyes were inflamed and suffused; the febrile symptoms underwent no remission. The parents relate, that no white tops were discernable till the 3d day, when, according to their own unsolicited remark, a dimple was perceived on their apices; at this period the vesicles were confluent, irregular in size and form, their contents clear and lymphatic, none of them abraded or broken, the face swollen, and the eyes closed.

"*5th day.* The vesicles are larger and more distended, exhibiting great variety of form and progress; every gradation from the incipient papula, to the matured vesicles, can be discovered throughout the eruption. Swelling of the face increasing; great restlessness, febrile action unabated.

"*7th day.* Vesicles opaque, and more turgid, some of them on the face have discharged their contents without crusting, leaving behind them a small pouch of cuticles.

"*8th day.* Vesicles hard at the base, surrounded with a purulent ring; in some, three alternating circles of pus

and lymph are observed, fever considerable, thirst urgent, bowels open.

“ 10th day. Vesicles have assumed the pustular appearance; many have coalesced on the face and legs, their form is irregular, principally globular, the situation of the dimples on the apex is marked by a straw-coloured point; swelling of the face diminished, now occupying the feet; several papulæ are still here and there to be seen throughout the eruption—pulse 100—thirst not so great—bowels open.

“ 11th day. The process of desiccation has commenced on the extremities, and considerably advanced on the face; the crusts are hard and horny—complains much of smarting over the skin. Vesicles of a hemispherical form, containing a clear and transparent fluid, are distributed here and there over the limbs. Extensive vesications appear on the outer sides of the left leg, and upper part of the hands, some of them filled with lymph, others apparently inflated with air. Pulse 108. Tongue cleaning. Heat and thirst not so great.

“ 12th day. Feels easier—slept well. The face is incased in one hard gritty scab. Pulse 108. Coughs a good deal. Appetite returning.

“ 14th day. Slept well after midnight. Cough less severe. Tongue clean—little thirst—improving.

“ 18th, Crusts have fallen off; convalescent.”

“ Cath. Holland, æt. 6. Began to complain on Sunday, 12th July. The eruptive fever was of the same continuance, and attended with the same incipient symptoms which occurred in the case of her elder sister. The eruption, as in the preceding instance, was perceived on the 5th day of indisposition. The papulæ were very confluent, and the febrile excitement very great. On the third day from the

appearance of the eruption, swelling of the face commenced. The vesicles were indented in their apices, uncommonly large, and of the most irregular forms, successive crops of papulæ came out during every period of the disease. Fever continued till the 11th day of eruption. There was slight secondary fever on the 13th. It cannot be said, in this instance, that the vesicles ever assumed the pustular state. On the ninth day they were scabbing on the face, while they continued fluid on the extremities till the 11th. Towards the decline of the eruption, extensive vesications were observed on several parts of the body. The surface was slightly pitted on the disappearance of the disease."

"John Holland, æt. 11, was attacked on Tuesday, 14th July. After a smart fever, which lasted four days, he had a copious eruption of papulæ over the whole body, remarkably confluent on the face and extremities.

"On the 5th day of eruption, the pock in some places, especially the face, was purulent—in others lymphatic, with hard inflamed bases, and surrounding rings of purulent matter. The fever, which had somewhat abated on the appearance of the eruption, returned with increased severity. The face was much swollen—there was great restlessness—thirst and heat of skin. Pulse 120.

"On the 6th day, the pustules on the face had run together in such a manner as to obscure the particular form of the eruption, leaving not an interval of sound skin between them, those behind the ear were more distinct and circular, very similar to what occurs in variola.

"7th day. Swelling of the face subsiding, commencing on the hands and feet. Pulse 120. Tongue moist—thirst not so great—complains of slight pain on deglutition.

"8th. Has been very restless during the night—great

heat of skin—pustules scabbing round the nose and above the eyes—very full and confluent on the legs, ankles and feet, and of a more regular form (hemispherical) and size than in the two preceding cases. Pulse 120. Voice hoarse—bowels open.

“9th day. Passed a bad night ; complains greatly of pain in the limbs, the swelling of which has much increased—pustules on the face crusted.

“10th. Very restless this morning. An extensive but superficial abscess in the subcutaneous texture has burst during the night, leaving the skin insulated from the parts below—pustules scabbing on the extremities—still full on the body, where they are few in number, distinct and separated. Pulse 112.

“12th. Crusting on the body—feels much easier. Pulse 100.

“14th. Has passed a good night ; crusts falling off, appetite returning.

16th. Convalescent.”

“N. B. The eldest of the family, who had also been vaccinated by the same midwife, escaped the disease, although constantly exposed to infection, while the youngest, an infant, (who had been recently vaccinated,) passed through the disease in so mild a form as to have been scarcely observed.”

No. VIII.

“ROBERT PATTON, 9 years of age.

“Sept. 29th, Skin hot ; face very red ; eyes inflamed and watery ; pulse 100 ; excessive headach. He was taken ill

on the 27th. Took a dose of senna this morning. To have his head shaved, and bathed with cold water.

“30th, An eruption began to appear this morning early. The senna not having worked him, he took the following powder—R. submur. Hydr. gr. iii. P. Jalap, gr. vii. tr.

“At 12, noon, when I called, it had operated well. Skin cool; face of natural colour; headach nearly gone; pulse 80. On his face there are a few vesicles, very small in general, but some are as large as large pin-heads. On other parts of his body are some, but most on his legs, where they are clustered. This boy was vaccinated by a midwife when he was 3 months old.

“Oct. 1st, He is up, and free of fever; but he vomits at times. Vesicles and papulæ on his face distinct, and with faint red irregular areolæ round them. The fluid of a pearly white. Hardly any on his body; but numerous on his feet and ankles, and many of them clustered together.

“2d, Pustules or vesicles increase in size; some have yellow pus in them. They are very itchy, which makes him restless in the night. Tongue white; appetite returning; headach continues.

“Oct. 3d, Rather feverish, with headach; pulse 100, and small; tongue white; pustules larger; skin rather raised betwixt them. They are all distinct, except a few on his feet and ankles. Rather costive. Rep. pulv. u. a. I looked for the cow-pock mark on his arm. His mother pointed it out to me; but I could observe no points in it. Many were vaccinated off his arm. There are other two children in the house, one 4 and the other 2 years old, who were both vaccinated. They have the mark very distinct. They are allowed to go about the room where their brother is. Robert has some appetite.

“4th, Skin cool; tongue clean; is able to eat; pustules increasing in size; complains much of itching and pain,

particularly in his feet, where the pustules are confluent ; pulse 80 ; bowels easy, but the purgative did not purge him. One of his brothers above-mentioned sleeps in the bed beside him.

“ 5th, Pustules larger ; but in general they are of a small size. A good number have yellow pus in them ; the others are of a bluish white. They taper from the base to the top, quite round. Pale red areolæ round them. Tongue clean ; belly open ; appetite good. He drinks more than when in health ; great pain in his forehead : pulse 90 ; eyes watery ; very restless from the pain of the pustules.

“ 6th, Till two A. M. this morning he rested very ill, being hot, and having much headach ; but after that he rested well, and is now quite cool. The pustules on his face dried, and blackening, and smaller. I opened one of the pustules on his knee. It contained a thin white matter, much thicker than the lymph of the vaccine vesicle. On the feet seven or eight have run into one large blister ; bowels open ; appetite good. Pustules on arms and legs seem to be at their acmè. No fresh crops have appeared. I examined his back to-day ; from the nape of his neck to the bottom of the sacrum not above two dozen pustules.

“ 7th, Many of the pustules on his face just like old scabs in porrigo. Small circles of red close round those on his hands and body, which are as yesterday. No depression in the middle of any of them. They are not all of one size ; on his legs some are as large as large peas, and ovalish, and others gradually smaller. Skin quite cool ; restless every night till about two A. M. ; bowels open ; good appetite.

“ 8th, Some pustules depressed and blackening on his hands and legs, but most of them on the former. Quite free of complaint. Slept well all last night. Many scabs on his face. His brothers as yet are no way affected.

“ 10th, Scabs on the face almost all off. Pustules on the

body, hands, and legs, in general, are flat and scabby. Many depressed in the centre, but some still round and full. Quite well otherwise."

"MATTHEW PATTON, aged 2 years.

"Yesterday he turned sick and vomited. Skin very hot in the night, but cooled towards morning. To-day, skin cool; tongue clean; eyes watery; much thirst in the night. He is running about as usual.

"11th, Matthew is to appearance well to-day."

JOHN PATTON, aged 4 years, was taken this morning with heat and loss of appetite. Eyes watery.

"The pustules on Robert are scurrying off in general, and the latest are quite flat and brown.

"12th, Matthew is quite well.

"John has some heat in the palms of his hands, and was restless in the night-time. Has little appetite, but is going about. Bowels regular.

"I examined again the mark on Robert's arm. It looks as if there had been a small sore in the place, but it has no pits in it, at least none well marked.

"The above is faithfully copied from my Journal, *exactly* as I wrote it, day by day. There may be omissions, but you may depend upon it there are no *after-additions*. I have no theory to serve.

"JOHN HUME, M. D."



